

The effect of corporate governance on UK investment trusts

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Abstract

The presence of investment trusts on the financial market dates to the mid-1800s. Their resilient survival over the years has allowed investors to benefit from their advantageous closed-end structure. Nevertheless, these funds have been in the spotlight in recent years due to the discount puzzle, whose source is yet to be determined concluded. In this study, we have focused on the effect of various corporate governance characteristics on the performance of equity-focused investment trusts in the UK through 2000-2017. The performance of these funds has been measured using both accounting-based ratios such as ROA and ROE, and discount—which is a market-based measure of the deviation of the share price from the NAV. In the last chapter, we focused on the total expense ratio and further untangled the fee by concentrating on the two largest contributors of fees which were management fee and administrative fee.

The presence of female directors, age and tenure are aspects of corporate governance that have received little attention in the context of investment trusts. Thus, our observation in this study help contribute to the literature. We observe a positive and significant relationship between both accounting-based measures, ROA and ROE, and female directors. When the market-based performance measure, discount, is used, however, we do not get a similar result. Female directors who were appointed two years ago on the board of directors do not have an impact on the current discount. Our findings also shows that older directors help enhance the performance of the funds, whereby both ROA and ROE were increased whilst discount was reduced. Longer tenure appears to be detrimental to investment trust performance.

We found a positive and significant relationship between performance and NEDs. The appointment of one more NED on the board led to an increase in ROA (1.12%) and ROE (1.23%). There was a similar observation when discount was used, it was shown that more NEDs on the board reduces the deviation between NAV and share price ($\beta = -0.0222$, $p < 0.001$). On the other hand, as predicted, an increase in remuneration of the directors lead to poor performance, measured by ROA and ROE. When analyzing ownership, it was shown that while director ownership had no effect on performance, substantial

ownership resulted in a higher ROA and a lower discount. When employing the dummy variables, auditor tenure, and shares repurchases, also helps reduce the discount level. However, we found no significant results for accounting-based measures.

In the final chapter, we focus on the fees charged by the investment trusts, mainly focusing on the TER (Total expense ratio), management fee and administrative fee. We observe a positive and significant relationship between fees and board size, female directors, and age of the directors. We do not observe any significant results for neither tenure of the directors nor ownership. It was shown that only board size had some impact on management fee, there was an increase of 0.05% in management fee when one more director was appointed on the board. Finally, we observe that larger and older funds have better performance and lower fees compared to their younger counterparts.

Keywords: Investment trust, closed-end funds, corporate governance, discount puzzle, fund fees

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List of acronyms

2SLS	Two-stage least squares
AIC	Association of Investment Companies
AP	Authorized participants
AUM	Asset under management
CEF	Closed-end funds
ETC	Exchange Traded Commodities
EMH	Efficient Market Hypothesis
ETF	Exchange Traded Funds
ETN	Exchange-Traded Notes
FCA	Financial Conduct Authority
FRC	Financial Reporting Council
FSA	Financial Services Agency
FSMA	Financial Services and Markets Act of 2000
GMM	Generalized Method of Moments
IT	Investment Trust
LSE	London Stock Exchange
NAV	Net Asset Value
NEDs	Non-executive directors
OEICs	Open Ended Investment Companies
REITs	Real Estate Investment Trusts
SICAV	Société d'investissement à capital variable
TER	Total expense ratio
QFIIs	Qualified Foreign Institutional Investors

CHAPTER 1: INTRODUCTION

1.1 Background

The notion of corporate governance and its practices have been existent since the beginning of corporate entities. During the early 1930s, Berle (1932) first brought attention to the growing separation between diverse shareholders and executive management. Berle, who was opposed to capitalism, added that when corporations accommodated more investors in their midst, the problem emerged due to a lack of effective monitoring of these agents from the shareholders arguably due to time and knowledge constraints. Furthermore, the competition amongst substantial shareholders and the influence of their private incentives also hinders oversight (Bebchuk et al., 2017).

By the late 1980s, the world witnessed corporate villains such as Ivan Boesky and Jordan Belfort who were engaged in corporate malpractices such as insider trading and stock market manipulation (Arenson, 1986; Solomon, 2017). These cases rocked the confidence of investors in the financial market, but most importantly drew attention to failures in corporate governance. It was apparent that these agents were steered towards greed rather than exploiting their abilities to maximize the wealth of investors. The tumble in the market in 2008 was a piece of vivid evidence that turning a blind eye can, and will, snowball into a global crisis.

The continued malpractices in the financial services industry highlight the importance of continuing the discussion on corporate governance. Although the financial services should be promoting the element of trust in their operations due to the nature of capital management, the Edelman Trust Barometer (2019) exposed that the financial sector remained one of the least trustworthy in the UK. During the same year, the fall of the Woodford fund and the barring of capital withdrawal from the M&G Property fund

showcased some reasoning behind the lack of trust. This once again rendered the agents of the funds deceitful for not upholding their side of the bargain, which is to maximize the wealth of the shareholders (Flood, 2019b).

The world's second-largest asset management takes place in the UK with £18.3 trillion being managed in open and closed-end funds, which are the two types of investment funds in the market. The Investment Association reported an increase of over 330% of the asset under management during the period of 2002-2016 (The Investment Association, 2017). Although there is an apparent lack of trust for the agents, the UK fund industry remains optimistic in their endeavors, with predictions of an increase in AUM over the next decade, despite their divorce with Europe (Investment Association, 2019).

1.2 Problem statement

It was reported that in 2014 most investment was done in open-end funds such as unit trusts and OEICs with £843 billion in 2538 funds. Meanwhile, only £122 billion were under management in 391 investment trusts (closed-end funds). There are currently 3833 open-end funds in the UK whilst the number of closed-end funds is significantly low at 296 (Trustnet, 2021). Despite their presence since the Victorian era, investment trusts have been receiving less interest compared to their open-end counterpart, with the latter experiencing an increase in the number of open-end funds and their popularity. We observed that the investigation on investment trusts and their performance has not been sufficiently explored in the current literature, therefore we focus on investment trusts in the UK.

Investment trusts are closed-end funds that trade on stock exchanges like companies. Their value depends on the amalgamation of the investment made in their underlying asset such as stocks. However, some studies (Draper and Paudyal, 1991; Lee et al., 1991;

Guirguis, 2018) highlight that these funds suffer from the discount anomaly, whereby they trade at a slight discount (rarely premium); therefore, not trading at their NAV. The Association of Investment Companies reports that, on average, closed-end funds (Excluding Venture Capital Trusts and including Real Estate Investment Trusts) trade at a discount of 7.75%.¹ This persistent anomaly has been observed for a lengthy period. Malkiel (1977) is the first contributor who attempted to clarify this anomaly using several arguments but found that the observations made only accounted for part of the anomaly.

In an investment trust, the investors are the capital providers who delegate the investment decision to the fund managers, with the expectation that the latter will act in their best interests. There is also a board of directors who are responsible to oversee the actions of the managers; hence it is believed that a principal-agent relationship comes into play. Since the structure of investment trusts allow for the separation of ownership and control, there is a possibility where the agents can become swayed by self-interest. Therefore, we aim to investigate whether there are conflicts between the agents and the principal by focusing on the performance of the funds.

The focus on performance was also fueled by the existence of the discount anomaly, where the share price of the investment trusts trades away from the net asset value. Pratt (1966) states that this phenomenon stretches as far back as the stock market crash in the 1920s; arguing that the discounts are rippled reflection from the crash and that before the crash some funds were trading at a premium of 50% or above. Although several studies such as Gemmill and Thomas (2017) and Guirguis (2018) have focused on the discount anomaly, there is a lack of focus on corporate governance and the discount anomaly.

The studies carried out on closed-end funds have not been able to point out a specific factor that is associated with the occurrence of discount; thus, this study will attempt to detect whether corporate governance affects the performance of investment trusts while also focusing on the discount anomaly—thereby intending to advance the literature on this puzzling anomaly. In this study, three research questions will be addressed in separate

¹ The discount of 7.75% was calculated using data as at 31/10/2019, the discount was computed only for investment trusts, other closed end funds such as Venture Capital Trust and Real Estate Investment Trusts were excluded. Their investment objectives and structure are different to investment trusts which could have an impact on discount.

chapters. The investigation focuses on two important aspects of investment funds, the performance, and fees of investment trusts. Investors are willing to tie their capital to a fund when they observe good performance with a reasonable fee, thus our paper aims to determine whether various corporate governance such as age, tenure, and gender can impact performance and fees.

The investigation focuses on various governance variables which can lead to a reduction in a conflict of interest with the managers of the funds, which in turn can lead to better performance.

1.3 Research motivation

With the increasing amount of money flowing into UK funds and the creation of newer investment funds to accommodate the growing appetite of investors' demand, good governance is crucial for the preservation of investors' trust and capital, while protecting the financial system. Figure 1 shows the flow of funds in UK equity and investment funds over 28 years. Apart from the Dot-com crisis (2002) and the financial crisis (2008), there has been an increase in funds. The collapse of Lehman Brothers in September 2008 triggered the global banking crisis, which resulted in financial markets crashing thus impacting investments. Although uncertainty prevails with regards to the UK's divorce from the EU, investors are still attracted to invest in the UK markets.

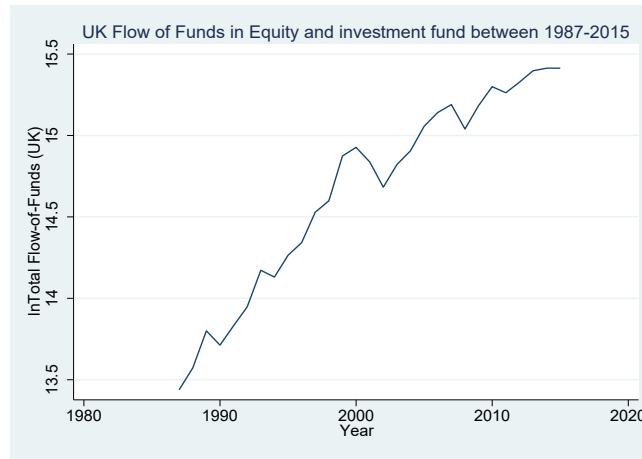


Figure 1 UK fund-flow in equity and investment funds between 1987-2015

Data source: The Blue Book 2016, Office of National Statistics

The revised UK Corporate Governance Code (2018) provides evidence that the focus on corporate governance will not halt anytime soon, and the magnifying glass will be more focused on different aspects of corporations and whether they are abiding by the codes. This study aims to contribute to not only the ongoing discussion on governance but also UK investment trusts. Due to the vastness of corporate governance, there is constant development in the theories proposed, but it all started with agency theory. Consequently, we utilize this theory in the study.

The persistent rise of the asset under management throughout the years has proven that investors find investments through funds more attractive rather than building their portfolios of funds as they often lack the financial knowledge to do so. Cocco (2018) has shown that the UK retail investment has fallen to the lowest since 1995 when observing an investor confidence index. The effect of corporate governance on the performance of investment trusts is observed in this study. Good corporate governance can help the funds acquire more investment and retain existing investors in the funds.

The focus on investment trusts is due to their structure where the shareholders are the principals and the board of directors and the investment managers are the agents, together

they support the investigation of corporate governance from an agency perspective. Investment trusts possess several features which differentiate them from other funds in the UK (unit trusts and Open-Ended Investment Companies), the presence of a board of directors who set the investment policies are also responsible for the appointment of fund managers. This shows that their presence enforces crucial decisions that dictate how the fund performs. Furthermore, the board is also responsible for the management of discount; an occurrence that has been puzzling researchers for years (AIC, 2018a).

The inconsistencies of the reasoning discovered behind the discount over the years have led to further investigation of this anomaly which does not conform with the efficient market hypothesis. In this study, we will attempt to find whether corporate governance plays a part in curtailing discount or rather the lack of good governance leads to the persistence of trading away from the Net Asset Value (NAV).

1.4 Aims, objectives & research questions

This research aims to address the limited studies conducted on investment trusts in the literature. Although these funds are the oldest investment funds in the world, they have been receiving less interest in the literature as opposed to their open-ended counterparts (mutual funds). Furthermore, the literature is quite barren when focusing on the corporate governance of investment trusts; studies carried out by Darko et al. (2016), Min (2017), Babalos et al. (2015), and Adams et al. (2018) focus predominantly on either firm or mutual funds. Therefore, we aim to fill the gap in the literature by focusing on the effect of corporate governance on UK investment trusts.

The objective of this study is to uncover whether there is a relationship between corporate governance mechanisms and the performance of investment trusts. The discount anomaly which is related to the performance remains a puzzle amongst investors as it defies the reasoning behind asset pricing theories. We focus on several corporate governance

characteristics such as gender, age, or tenure to uncover whether these factors can impact the discount along with other measures of performance. Although studies by Souther (2016) and Gemmill and Thomas (2018) have focused on discount, we observe that there is a lack of investigation from the corporate governance perspective.

Furthermore, the structure of investment trusts allows for the separation of ownership and control similar to firms, which creates a principal-agent relationship. Investment trusts are managed by the investment managers, who are in turn monitored by the board of directors. From a shareholder perspective, the board of directors is the agent in these funds and a potential conflict can arise if the agents have a divergent interests. Investment managers may sometimes be more willing to embark on investments with higher risk whilst facing reluctance from the shareholders. There can also be a clash with the board of directors if the latter are not properly overseeing the actions of the managers.

If there is proper supervision, ultimately the managers will need to respect the goal of their shareholders. Therefore, we will tackle the focus of corporate governance through the lens of agency theory as it is deemed more appropriate compared to other theories. The reasoning will be discussed in more detail in the literature review.

Research question 1

The first chapter will focus on the performance of UK investment trusts which will be measured using accounting-based ratios such as return on asset (ROA) and return on equity (ROE). Most assets in an investment trust consist of investments. These are non-current assets. Unlike passive investment funds such as index funds managers in investment, trusts have the responsibility of investing in various financial assets to adhere to the investment strategy proposed by the fund whereas passive funds only invest in the securities listed on a predefined index. These investments help generate income which is

passed on to the investors; therefore, the use of ROA will be used as a profitability measure.

Since this study is focusing on the agency theory, the focus on the maximization of shareholders' equity should be examined present, which makes ROE and ROA suitable performance measures to be utilized. Previous studies by Rappaport (1986) and Marchini and D'Este (2015) support the importance of ROE as it can easily indicate whether managers are performing well or not. Bettis (1981) finds that ROA "reflects a return more directly under the control of management" (pg.384). Hagel et al. (2013) and Berk and DeMarzo (2017) both add that ROA is less vulnerable to leverage as compared to ROE. Hence, we will use these two indicators of performance to detect whether corporate governance characteristics such as gender and age would have an impact on them.

Most of the focus in investment trusts has been driven by the discount anomaly, from which can be inferred that the financial performance of these funds has hardly been studied using accounting-based ratios. Furthermore, the focus of corporate governance variables relies on mainly board characteristics that are aligned with the agency theory. This allows for the contribution in the literature, as well as to understand the performance of a sample of 123 UK-listed equity-focused funds. The research question is formally stated as:

Do corporate governance characteristics affect the performance of investment trusts when measured by accounting-based ratios (ROA and ROE)?

Research question 2

The second chapter focuses on the performance of the investment trusts. The focus will be on the level of discount/premium the investment trusts trade at. A report carried out by McKinsey & Company (2000) highlighted that investors are willing to pay a premium for

better-governed funds due to the belief that these funds are more likely to provide higher returns. It is further noticed that investors were willing to pay 18% more for better governed UK companies, although they had comparable performance results with companies with poorer governance. This highlights the importance that investors place on a well-governed environment which translates into feeling more secure in knowing/determining where and how their capital is handled.

The AIC reports that investment trusts were trading at a premium ranging from 0.01% to 38.39% in 2019,² in the previous year the highest premium was 79% which showcase a decrease of 40.61%. The board of directors in investment trusts holds the responsibility to undertake negotiations in favor of the shareholders; thus, decisions on crucial aspects of the funds such as fees affect the performance of the funds which is reflected by the level of discount they trade at. Consequently, the characteristics of the board members (age, gender, tenure), as well as their remuneration and ownership, can help to determine whether there is an effect on performance, especially if they can help reduce discount and enhance premium.

Previously the role of the board of directors in investment trusts involved the selection of portfolio constituents, whilst the fund manager would implement the decisions taken by the board (Davis et al., 2019). Over time, fund managers have been bestowed the responsibility of investment decisions whilst the board oversees the fund managers—ensuring the latter are investing according to the mandate proposed to the investors. The investment decision can affect the discount level, both the investment decisions from the managers and the oversight from the directors are crucial in curtailing the deviation. Therefore, it can be argued that the agents should be aligned in their duties to minimize discount. The research question for this chapter is formally stated as follows:

Does corporate governance affect discount, and how can the effect be compared to the effect on accounting-based measures?

² Data as at: 31/10/2019

Research question 3

The level of fees charged by the funds is fundamental as it becomes a key determinant of whether investors will choose to invest in that fund or not. In this chapter, we aim to discover whether corporate governance variables have an explanatory influence on the fees charged by the funds. Markowitz (1952) supported the idea that investors make an investment based on risk and return; however, these returns are subjected to fees that could alter the return. Hence, the agents of the funds must work towards minimizing the costs for the funds, as it can help in the retention of their investors.

It is suggested by Coles et al. (2000) that funds charging higher management costs are reflective of better management quality since it is costlier for managers to gather information to pursue value-increasing investments. This finding is confirmed by Belghitar et al. (2017), this study focused on a sample of socially responsible investment funds in the UK. Brauer (1988) found that when a large discount persists in closed-end funds, the funds are converted into an open-ended structure. However, the conversion does not always occur, it is proposed that open-end funds charge lower fees as compared to closed-end fees; therefore, managers may resist the change to benefit from larger fees thus creating agency conflict.

In this chapter, we aim to determine whether corporate governance variables such as gender and age can have an impact on the total expense ratio (TER) of the investment trusts. The research question is stated as follows:

Does corporate governance affect the level of fees as measured by TER in investment trusts?

1.5 Research methodology

Since this study aims to uncover the effect of corporate governance characteristics on the performance and fees of investment trusts, a set of hypotheses was devised based on the corporate governance literature. We used a unique sample of 123 investment trusts throughout the period of 18 years (2000-2017), which has been hand collected, mainly from the annual reports of the investment trusts. Following previous studies (Bauer et al., 2010 and Green and Homroy, 2018)) that focus on closed-ended funds and corporate governance, we aimed to use pooled OLS regression. Since we have employed panel data, the Hausman test was used and estimated that the fixed effect model would be appropriate. Therefore, it was deemed appropriate to carry out the multivariate regressions for the sample of investment trusts, whilst also including fund and year dummies.

Prior to using the OLS regression, it is imperative to run some tests to determine whether the assumptions of this model are upheld. If they are violated, they will produce biased findings. The tests³ that were run showed no presence of autocorrelation or multicollinearity in the dataset. However, the Shapiro-Wilk test revealed that the data was not normally distributed whilst the Breusch-Pagan test showed that heteroscedasticity was present. Therefore, we used logarithmic transformation and used robust standard errors. Since the Wu-Hausman test showed possible signs of endogeneity, in the presence of this violation it is deemed that the OLS method would not be suitable. Therefore, we utilized the Two-stage least squares (2SLS) would be a better model to use rather than the OLS.

In chapter 4 we use discount as a performance measure and this data is dynamic, where the current value of the performance measure is dependent on the past values. Furthermore, since we are potentially dealing with a situation where the independent variables are not strictly exogenous, we have determined that the 2SLS method might not be appropriate. Therefore, we rely on the generalized methods of moment (GMM). This

³ The Durbin-Watson test was used to test for autocorrelation and the Variance Inflation Factor along with the correlation matrix was used to determine whether multicollinearity was present.

model will control for the endogeneity issue of the lagged discount value and unobserved panel heterogeneity (Arellano, 2009).

1.6 Overview of the research

Chapter 3 (First empirical chapter)

The corporate governance data used in this study were hand collected from the annual report, whilst the performance measure, ROA, and ROE were calculated for uniformity. Since the data consist of panel data, the use of pooled OLS regression was considered and thus we ran the Hausman test and determined that the fixed effect model had to be utilized. However, prior to running the regression, it was discovered, through several tests, that there was a violation of certain assumptions: normality, homoscedasticity, and endogeneity. The Wu-Hausman test helped detect the presence of endogeneity, which rendered the use of OLS regression not appropriate thus the 2SLS model was utilized instead.

It was observed from the correlation matrix that there was a negative relationship between audit tenure and numerous corporate governance such as female directors (-0.168), age of directors (-0.0610), and tenure of directors (-0.0676). These findings potentially indicate that the inclusion of more female directors on the board can lead to more active monitoring. Furthermore, older directors along with longer tenure help these individuals accumulate more experience and skills over time which also helps in curtailing potential entrenchment of the auditors. The positive relationship between remuneration and fund size could be explained by the employment of more skilled directors in larger funds.

This chapter employed the 2SLS models and two instruments were utilized nationality and occupation. The Hansen J test showed that both instruments were appropriate to be used. We observe a positive relationship between NEDs and female directors with both measures of performance, which supports our hypothesis. On the other hand, the observation for age and tenure showcases the opposite of our hypothesis, they also have a positive relationship with performance. We also observed that nationality had a positive impact on both ROA and ROE, where the inclusion of non-British directors on the board leads to a diverse pool of knowledge. The relationship between remuneration and performance is negative, which is in alignment with the agency theory.

Chapter 4 (Second empirical chapter)

Investment trusts typically trade at a discount, where the market price is below the NAV. In our sample, 89% of the investment trusts trade at an average discount of 13% whilst the remaining 11% trade at an average premium of 6%. Since the deviation is persistent in these funds, we choose discount as a market-based performance measure. Before proceeding with the regression, we carried out some tests to verify whether the OLS model was appropriate to us. However, the detection of non-normality, heteroscedasticity, and endogeneity meant that OLS would not be appropriate in this chapter. Discount can be seen as dynamic data whereby the past values have an impact on subsequent values; therefore, the GMM estimator has been utilized.

The correlation matrix showed a positive and significant relationship between discount and size of the investment trusts (0.1471). The same relationship can be observed between the size and remuneration of the directors (0.6023). On the other hand, a negative relationship was detected between NEDs, and remuneration is negative and significant (-0.2080) and NEDs and the director's ownership (-0.1713). The mean VIF is below 10,

which indicated that there is no presence of multicollinearity. When there is an increase in both audit tenure and shares repurchases. Discount is reduced.

Since we are applying the GMM estimator, it is critical to determine whether the instruments used were valid; the Hansen test was found to be insignificant indicating that the instruments used were good. Furthermore, we observe that AR (2) was not significant which means that the model was not suffering from second-order serial correlation. The results have shown a negative relationship between discount and NEDs. Whilst corporate governance mechanisms such as female directors, age of directors, and tenure of directors had a positive relationship with discount. Both the substantial ownership and director's ownership helped decreased discount as we observe a negative relationship between them.

Chapter 5 (Third empirical chapter)

In this chapter, the focus is shifted from performance to fees. Fees have been considered to be an important factor to consider due to their adverse effect on return, which can potentially eat into the return of investors. The fees that have been chosen include total expense ratio (TER), management fee, and administrative fees. Although the TER includes all the fees that the funds incur, it was important to also use management fees, because their fees are set by the board of directors, and they represented 63.8% of the total fees. The fees have all been manually computed for a homogeneous set of data since different investment trusts had calculated the TER differently. As opposed to the previous chapter, the Wu-Hausman test did not detect the presence of endogeneity; nor were there any issues of autocorrelation and multicollinearity. Thus, we employed the OLS regression with fixed effects.

The correlation matrix showcased some significance between fees and corporate governance mechanisms such as board size, female directors, and age; however, most

findings had a low correlation. It was observed that there was a negative relationship between board size and TER, and between female directors, which could indicate that larger boards can lower the fees charged to the investors whilst more female directors would lead to lower potential entrenchment of the directors. The relationship between female directors and management fees is also negative which can also indicate that female director monitor the fees of managers very closely; if the fees are not justified by the performance, it can be reduced.

The regression results include a positive relationship between TER and board size and female directors, these results are not in alignment with our hypothesis as we predicted that smaller boards and gender diverse boards would reduce the fees. On the other hand, we observe a positive relationship between fees and the age of the directors. Since there was no significance with ownership (substantial and director's), we can deduce that they do not impact the level of the fees. When we focus on the administrative fee, we find similar results as the TER however there was no significance with the management fee for any corporate governance variables.

1.7 Research contributions and key findings

In this study, we focus on various board characteristics, including age, tenure, and female directors. There is literature covering these characteristics in firms and mutual funds (open-ended funds) however these characteristics have not been studied in the context of investment trusts; therefore, we aim to fill the gap for corporate governance in UK investment trusts. We have detected some significant results for female directors. As per our proposed hypothesis, we observe that female directors have a positive impact on performance however they have a negative effect on discount. Whilst the age of directors was seen to have a positive impact on ROA and ROE, which shows that older directors add value to the funds.

In this study, we consider the board of directors to be a pivotal inclusion in the investment trusts as they monitor the fund managers. It is observed that when the board is fully comprised of non-executive directors, it has a positive impact on all measures of performance. However, we also detect a positive relationship with some measures of fees. The remuneration paid to these directors has shown a negative relationship with performance. In Chapter 5, we do not employ remuneration as a corporate governance variable as it is already included in the fees' calculation such as TER.

We also utilized both director's ownership and substantial ownership to comprehend whether the relationship of control and ownership impact performance and fees; we observe that there was no relationship with the measures of fees. On the other hand, we detected that when substantial ownership (3% or more) increased, both accounting performance measures (ROA and ROE) and discount also increased. However, we discovered mixed findings with director's ownership, there was no significance with accounting-based measures and fees, but there was a significant and negative relationship with discount.

1.8 Thesis structure

This thesis has been tackled through six chapters as shown by Figure 2. The first chapter introduces the study by discussing the motivation and research problem that fueled the research questions. The second chapter narrows the focus on popular investment funds in the UK, both open-end funds and closed-end funds to grasp a better understanding of the investment options of investors. This chapter also concentrates on the importance and evolution of corporate governance throughout the 18th to 21st century. The discussion

cascade into various theories within corporate governance which enables us to determine which one would be more appropriate to utilize in this study.

The literature influenced the selection of various corporate governance mechanisms, which were either scarce or absent in prior studies carried out for investment trusts. We were able to derive severable testable hypotheses based on the literature which was presented in three empirical chapters (Chapter 3-5). Chapters 3 and 4 will focus on the performance of investment trusts by focusing on accounting-based ratios (Return on Asset and Return on Equity) and market-based measures, discount. whilst Chapter 5 will focus on the effect of corporate governance on fees charged in investment trusts, focusing on the total expense ratio (TER).

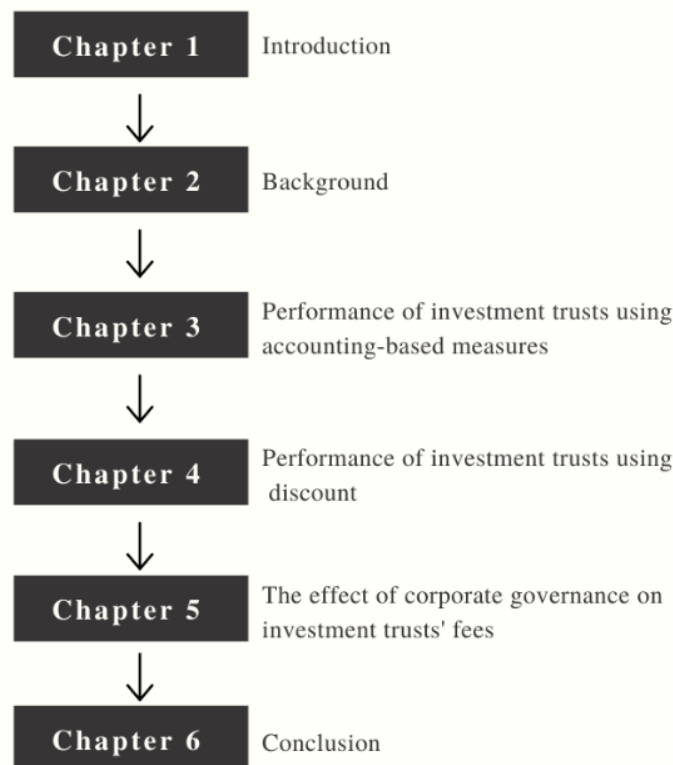


Figure 2 Structure of the thesis

CHAPTER 2: BACKGROUND

2.1 Introduction

This chapter helps provide some background knowledge regarding the funds present in the UK and also understand the history and evolution of corporate governance, which will aid to comprehend the reasoning behind the choice of investment trusts to be studied within the corporate governance framework. Every investor has their financial objectives and a certain level of risk aversion. The Office of National Statistics (ONS)⁴ reports that individual investors accounted for 12.3% of investment in UK shares. Meanwhile, other investors choose to delegate the investment responsibility to asset managers. The Investment Association reported that its members managed £7.7 trillion of assets in various funds including investment trusts (Investment Association, 2018).

2.2 UK Funds: 18th – 21st century

Eendragt Maakt Magt which translates as “Unity creates strength” originated the idea of pooling funds together to reduce risks while diversifying. The credit crisis in the early 1770s gave rise to the world’s first investment fund created by a Dutch merchant, Abraham Van Ketwich; the fund focused on foreign bonds instead of domestic bonds which were providing a lower return. The Netherlands was no stranger to bringing

⁴ Office of National Statistics (2018)

forward changes to the financial scene. In 1622 they first debated about corporate governance after investors complained about managers' actions, which played a part in the delegation of management role to prevent conflict of interest. But although they attempted to promote good governance whilst earning higher returns, the fund was liquidated in 1824 due to its failure; partly linked to political upheavals in Europe during that period (Rouwenhorst, 2003).

During the 19th century the British Government Bonds were top-rated amongst investors who were interested in earning regular payments, however after the completion of the railway network the government's need for borrowings diminished leading to fewer domestic investment opportunities (Hutson, 2005). These propelled investors in Britain to seek foreign investment opportunities which were facilitated by merchant bankers such as the Rothschilds (Morgan and Thomas, 1962). During the same period, the world saw the emergence of the first investment trust, Foreign and Colonial Trust was set up in 1868 to diversify investments while allowing investors with moderate means to participate; they focused on foreign bonds as shown by Table 1.

Table 1 The sample portfolio of Foreign & Colonial Trust in 1868

Issue	Price of purchase (£)	Implied yield (%)
Danubian	72.00	11.67
Italian	49.75	11.53
Portuguese	41.75	9.70
Spanish	38.50	10.44
Turkish	36.25	15.43

Data source: Scratchley, 1975

The advancement in the fund industry remained a British sensation. By 1900 there were 71 investment trusts registered in England and 11 in Scotland; giving investors opportunities to create a diversified portfolio with stocks and bonds from Britain and

beyond (Lanyon, 2017). The outbreaks from the world wars left the British finances almost entirely drained especially after massive borrowings from the US. Moreover, the turmoil in the financial market throughout the world affected investments made by the trusts. More problems ensued when the stock market crashed in 1929. Many investment trusts were highly leveraged which caused a magnifying plunge in their values, which gave their open-ended counterparts a foot in the door as they were not geared (British Empire Trust, 2016). After this crisis, the US took the reins and expanded the mutual fund industry.

Despite all the obstacles from the great depression to the dot com crisis, there are currently 26 investment trusts that have survived the harsh financial conditions for the last 150 years. They were created between the years 1868 to 1912 and are still trading on the London Stock Exchange. Furthermore, impressively some of these trusts have also been increasing their dividend payments for 50 consecutive years (AIC, 2017b). This has been supported by the existence of revenue reserve in closed-end funds, which means that in the case of investment trusts they do not have to pay out all the profits to investors, as some are kept in reserve. The consistent dividend payment is one reason that has retained the relevancy of the funds, along with their original aim of providing investment opportunities for investors with smaller capital (Bowsher, 2017).

In this section below, we will focus on different types of funds to have a better comprehension of their operation and their differences which could be dictating the inflow and outflows of investors' funds. Over the years investors have been flooding in unit trusts which have led to the creation of more funds. Amongst the varied types of investment funds, open-end funds such as ETFs, unit trusts, and OEICs and closed-end funds such as investment trusts are the most popular amongst UK investors.

2.2.1 Investment trusts

Structure

Investment trusts are among the oldest type of collective investments operating similarly to companies, contrary to the name they are not trusts. These funds trade on the stock exchange and are required to abide by regulations set by the Financial Services Agency and the Company Act. The funds have a fixed number of shares on issuance, their closed structure allows for stabilization of the pooled capital; during rising and falling markets a limit is placed on massive inflows and outflows. Their structure is also beneficial in securing more capital through long-term borrowings permitting for enhancement of shareholders' returns.

Investors are sometimes drawn to a fund when they see that there is a manager with a good track record, or the experience they have in the industry, in investment trusts managers are overseen by a board of directors. Under the Company Law, the board of directors is comprised of an independent chairman and directors (Gibbon et al., 2018). The presence of a board is essential in monitoring the investment choices of managers and whether their strategies are aligned with the objective of the fund, which helps in the protection of investors. The board bears the responsibility to replace poor-performing managers with another manager who is better suited for the fund.

The case of British Asset Investment Trust in 2014 showed that the board of directors had the authority to replace F&C Investment management as their manager with Blackrock Fund Managers due to a change in their investment focus across different asset classes (Morningstar, 2014). The role of a board further includes setting up the charges for the fund. Generally, investment trusts have a lower fee as opposed to other investment vehicles; part of the reason is linked with not being allowed to promote their funds through mass media as a mutual fund would (SEI Global Asset Management, 2015); therefore, a lower fee helps them attract new investors and also retain their existing ones.

Since there is a cost associated with borrowings, managers must be confident that a higher return can be obtained before they embark on debt because although gains can be

magnified when funds are geared, they also face the possibility of amplified losses. In each investment trust, they have their gearing strategies, for instance, they can only be geared up to 15%; the range of gearing is also a matter that is agreed upon by the board of directors. Open-ended funds are not allowed to be geared, which gives investment trusts a competitive advantage, and often these funds can perform better due to the extra investments that they make.

Discount anomaly

When shares are traded on the exchanges they are bought and sold by investors allowing for the process of price discovery. But quite frequently the trading price is above or below the NAV, meaning that they are deemed to be worth more or less by the investors. Since discounts are more prevalent than premiums, it gives rise to the discount anomaly which indicates some misalignment in the market. For instance, an investment trust has 10 million shares outstanding and £10 million of assets; it means that each stock is valued at £1, but if the shares are trading at £0.75 it implies that there is a discount. Modigliani and Miller (1958) proposed that the value of a fund should be equal to the amount of each asset under market conditions; the absence of this equality would present an opportunity for costless arbitrage (Dimson and Marsh, 1999).

Several studies (Boudreaux, 1973; Pontiff, 1995; Chan et al., 2008) have attempted to unmask the reason behind these anomalies, it is proposed that when managers make lousy investment decisions it is reflected in the performance of the fund, and this further discourages investors from purchasing the shares which then leads to trading at a discount. When the discount increases, it is deemed to be a sign that investors' confidence is also decreasing (Stevenson, 2017). The discount can be seen as an advantage to long-time investors since the purchase of shares at a discounted price can be potentially sold at a

later stage for more, providing the fund trade at its NAV or if the discount lessens. The higher demand for funds trading at a discount can lead to the narrowing of discount.

The discount anomaly will be explored further in Chapter 5 when we focus on the effect of corporate governance characteristics on discount or premium for the investment trusts.

2.2.2 Unit trusts & Open-Ended Investment Companies (OEICs)

During the great depression, many investment trusts went out of business because they owned many underlying stocks whose prices were starting to decline, and dividend distributions were low or nonexistent; these factors further led to investors selling their shares. At the same time, their open-end counterpart mutual funds were also affected, many were able to withstand the crash. It could be reasoned that the restriction on borrowings to further their investments like their closed-end fund counterparts worked in their favor as losses were not magnified. The idea of open-end funds was brought in the UK in 1931, Municipal & General Securities Company Limited was the first unit trust to be set up in Britain investing in 24 blue-chip British companies (M&G Investments, 2018). Nowadays, the most popular open-end funds in the UK are unit trusts and Open-Ended Investment Companies (OEICs), which are more equivalent to mutual funds in the US.

The history of investment funds shows how the journey started in Europe, Société d'investissement à capital variable (SICAV) are open-ended funds which have been commonly used in Western European countries such as France, Luxembourg, and Italy (Financial Times, 2007); in the UK the same type of fund is marketed as OEICs. The concept of these funds takes their origin from Europe, and their structure is governed by the EU legislation which works for their benefit since they can market and trade their funds across the continent (Gillen Markets, 2018). Although OEICs made their debut

much later in the UK, they have been attracting more investors as they have a wider audience than unit trusts due to their visibility in Europe, and this has further led to the conversion of many unit trusts into OEICs. More details about each structure are listed in the next section. Overall, together these two types of funds make up the largest part of the UK's fund market; their contribution to the financial economy is surpassing those of closed-end funds.

Structure

These two types of funds serve the purpose of providing investors with a diversified portfolio at a lower cost, but the way they are set up varies in a few aspects. OEICs are legally created as companies and are governed by company law whilst being incorporated under the Financial Services and Markets Act of 2000. On the other hand, unit trusts are established under a trust deed that is governed by Trust law. Both the share of OEICs and the units of unit trusts are classed as either accumulation or income. Income units provide investors with dividends whilst accumulation units aim at reinvesting those dividends (Personal Finance Society, 2011). The shares of OEICs can be differentiated by a different letter (e.g.: A, B, S) which has different fee implications (Ninetyone, 2020)

Due to their openness, units and shares from the funds can be created and redeemed. When investors decide to sell their investment back, the AUM diminishes; if other investors do not purchase the units/shares, then they are redeemed whilst incurring some cash outflows. Conversely, when investors wish to buy into the funds, there is cash inflow; in either situation, the fund manager will be required to rebalance the portfolio by increasing or reducing their exposures (Zilbering et al., 2015). Investors also need to be aware of any initial sales charge or redemption charges when making decisions; fees are typically around 1%-5% (Hewett, 1991; BMO, 2020); although the initial charge of 5% is less common nowadays (Warwick-Ching, 2013).

Due to their different structure, their management varies also; in a unit trust there is a trustee which is usually a large bank, who is appointed to hold the assets of the trust, the trustees are governed by the Trust Companies Act 1967. Similar to the role of a board of directors, they must keep track of actions taken by management and oversee whether the investment is made following the objective set up. If managers have poor investment performance the trustees have the authority to replace them. The trustees are responsible for holding the assets of the fund, unlike investment trusts, the investors in unit trusts are not the owners of the fund (Blackrock Collective Investment Funds, 2018).

Similar to investment trusts, OEICs are required to have a board of directors that are known as a single corporate entity, an authorized corporate director (ACD) whose duty is to manage the fund whilst protecting the shareholders. The assets of the funds are kept with an independent authorized person known as the depository (Investment Management Association, 2014). For instance, Aberdeen Standard OEIC V is an open fund that focuses on capital appreciation; their ACD is the Aberdeen Standard Fund Managers LTD and the depository is Citibank Europe PLC. It can be observed that in this case, the directors of the fund may not necessarily be independent which can affect their monitoring duties (Aberdeen Standard OEIC V, 2019).

Pricing and charges

Another difference is the pricing of the funds; unit trusts have a dual pricing system where there is a different price when investors want to trade their units, the price to buy the unit is usually higher than the price unit are sold back to the fund (Columbia Threadneedle, 2018). The spread between the bid-ask incorporates the front load and any difference in remaining units being bought or sold. Although it can be used to cover the expenses and commissions paid to brokers, the amount charged by the managers usually varies, and there is a lack of transparency associated with the amount charged. Unlike investment

trusts, they have to abide by the requirements of the stock market which includes transparency regarding fees.

Recently the FCA decided to crack on the “box profits”⁵, many funds such as Schroders are moving away from the dual pricing instead, they opt for single mid-market pricing (McGachey, 2018). Similarly, OEICs charge a single price and offers more transparency to the investors. The fee charged to investors is crucial, it can be argued OEICs share a higher popularity vis-à-vis unit trusts and their single pricing could be the cause. A similar logic could be applied to investment trusts, however, more focus on fees will be carried out in Chapter 6.

2.2.3 Exchange Traded Funds (ETFs)

History

ETFs are funds that aim to replicate the performance of a benchmark index; they differ from other index-tracking funds due to their ability to trade on stock exchanges (Nehra and Favre, 2013). Since the early 1970s, major US brokerage firms started providing investors the facility to invest in a basket of stocks with a single transaction particularly with the S&P500 index. Based on this idea, in 1990 the Toronto Index Participation Units (TIPs) was introduced and was tracking the Toronto 35. Despite the success, they were short-lived; due to the low fees they were charging while incurring heavy trading costs on

⁵ Box profit is defined as the difference between the offer price, which is the price investors pay to buy in a fund and the bid price, the price at which the fund buys the share or unit back, it is often seen that the offer price is higher which allows the fund to make a profit (Reeve, 2013)

the exchanges. The success of these funds was acknowledged by the US, and the Standard and Poor's 500 Depository Receipt (SPDR) became the world's first ETF.

ETFs have become the fastest growing financial product in the EU, it is reported that between 2003 and 2017 there has been an increase of 3750% (2003: \$20 billion, 2017: \$720 billion) in assets for European ETFs, in the same period there was an increase of 2176% in the US (ETFGI, 2018). The growth in the ETF industry in Europe is higher as they were exposed to ETFs a few years after the US. The US issued its first ETF in 1993, SPDRs; a few years later the UK started its ETF journey by issuing an ETF that was tracking the FTSE100 index in 2000. After 18 years the LSE boasts trades from 1611 ETFs on its platform and 580 other Exchange-traded products such as ETCs and ETNs. The number of trades has also increased considerably from 738,648 in 2011 to 2,245,661 in 2017 whilst having an increase of 114% in the trade volume. This is evidence of successful financial innovation in the fund industry.

Structure

ETFs can be viewed as hybrid funds with both open-ended funds and closed-end funds' structures since they can embark on the creation/redemption process to accommodate investors joining and leaving the funds whilst benefitting from exchange tradability. With a typical mutual fund, investors can make a trade once a day whereas investors can transact their ETF shares throughout the day. (Vanguard, 2014). These funds are providing investors access to a wide range of assets and those that were previously difficult to own such as emerging market bonds and alternative assets. For example, SPDR® Bloomberg Barclays Emerging Markets Local Bond UCITS ETF (Garcia-Zarate, 2016) allow investors to invest in the debt market of emerging countries such as South Korea, Brazil, and Indonesia; this ETF charges an ongoing fee of 0.5% which is quite cheap to allow investors to gain such a broad exposure.

Creation and redemption process

ETFs have a dual existence in the market, in the primary market, the creation and redemption process is facilitated by Authorized Participants (APs). The APs are generally institutional investors such as brokers and market makers, they can buy and sell a large number of shares thus allowing for the liquidity of the fund to be enhanced and ensuring that price deviation is limited. It is reported that typically the creation and redemption process is carried out in blocks of at least 25000 ETF shares (Charles Schwab, 2019), it is often difficult for retail investors to execute such large trades therefore the latter along with other investors (institutional, financial advisors & stockbrokers) benefit from ETF by buying and selling shares on the secondary market.

The process begins with an agreement between the fund and APs regarding the amount to be created or redeemed, which are done in units. For instance, a creation unit composed of 25000 shares at £50 will have a value of £1.25 million. The AP will deposit a pre-specified stock basket with a value of £1.25 million to the ETF provider, which is then exchanged for ETF shares. If the share price deviates from the NAV, the AP will provide the ETF with cash to make up the difference between the value of the stocks and their NAV, allowing the shares to trade at fair value. The APs can then circulate the shares of the ETF on the secondary market to meet the demand of investors (ETF, 2020).

Since the ETFs provide two prices, one for the market price which is determined by the supply and demand; and the other for the NAV of the shares based on the holdings they have; when investors have a high pressure to buy or sell it causes these two prices to deviate further from each other. The intervention of the AP can help absorb liquidity shocks by arbitraging any sizeable differences between the underlying stocks and the ETF (Bang, 2018). If the share price exceeds the NAV, the AP will short sell the ETF shares whilst simultaneously buying the underlying securities that make up the ETF. For

instance, if the ETF is tracking the FTSE100, the AP will purchase shares of the constituents of that index (ETF, 2020).

2.2.4 Comparison of funds

Table 2 provides a summary of the main characteristics of the most common closed-end funds (investment trusts) and open-end funds (Exchange-Traded Funds, Unit trusts, and Open-Ended Investment Companies) in the UK. Although the funds share the same goal which is to provide diversification to the investors at a lower cost, several characteristics differ the fund from each other. Investors may choose the funds based on their investment objectives but also characteristics such as tax implication for dividend or the fund manager. The differences between the funds allow us to comprehend the reasoning behind the choice to study investment trusts.

In terms of tradability, only investment trusts and ETFs trade on the stock exchange which implies that these funds are legally obliged to disclose certain documents such as annual reports regularly and be transparent. It was easier to gather information for these funds, on the other hand since unit trusts and OEICs do not trade on the exchange, the gathering of information for the funds over the chosen period of study (2000-2017) was difficult to execute. Although ETFs trade publicly it was difficult to also gather their data from Companies House. Furthermore, the 1827 ETFs⁶ trading on the London Stock Exchange were launched between 2004-2020. The collection of data was already tedious due to the nature of data, which was required in this study, therefore we decided to opt to study investment trusts as their annual report was easily accessed on Companies House.

Unlike Unit trusts, both investment trusts and OEICs are governed by a board of directors however their independence can vary. Investment trusts usually have a board composed

⁶ Based on information as of July 2020 from London Stock Exchange Group (2020)

of mainly or fully independent directors, on the other hand, the board of directors which is often referred to as the Authorized Corporate Director (ACD) is often composed of one director. Furthermore, the ACD may often be part of the same investment fund, so it is an internal director which can have some implications on their monitoring. In unit trusts, the trustees carry out a similar role as the board of directors whereby they oversee the fund managers, whilst also holding the assets. Since the trustees hold the assets, they are technically the owners instead of the investors therefore the principal-agent relationship is different in this type of fund.

Table 2 also indicates that investment trust is the only type of fund that suffers from persistent discount/premium. Although ETFs can experience a slight deviation in their share price, the intervention of the authorized participants reduces this occurrence. Therefore, the shares of the ETFs trade close to their NAV, unlike investment trusts. In this study, we aim to focus on the effect of corporate governance on the discount anomaly therefore we choose to study investment trusts as the anomaly is persistence in these funds. Additionally, investment trusts allow us to focus on corporate governance through the agency theory due to its structure and management.

Table 2 Comparison between Investment trusts, ETFs, Unit trusts and OEICs

Fund type	Investment trusts	ETFs	Unit trusts	OEICs
Example	BlackRock Greater Europe IT	BlackRock U.S. Equity Factor Rotation ETF	BlackRock ACS 30:70 Global Equity Tracker X1	BlackRock ACS World Multifactor ESG Equity Tracker X1
Is it a sub-fund?	No	No	Yes ⁷	Yes ⁸
Structure	Closed end	Open-end	Open-end	Open-end
Shares/units	Shares	Shares	Units	Shares
Trade on the stock exchange	Yes	Yes	No, units purchased directly from the fund	No, shares purchased directly from the fund ⁹
Do they trade at a discount/premium?	Yes, they usually trade at a discount (sometimes premium)	Yes, the share price can deviate from NAV ¹⁰	No, share price reflects the value of the underlying assets	No, share price reflects the value of the underlying assets
Corporate governance	Board of directors	Board of directors ¹¹	Depository custodian	Depository custodian ¹² Authorized Corporate Director (ACD) ¹³
Management	Fund manager(s) (external manager). If there is an internal fund manager, the fund must receive authorization first	The fund manager(s) Authorized Participants (APs)	Fund manager(s) Trustee	Fund manager(s)

⁷ Form part of an umbrella Co-ownership Scheme. These trusts are not separate legal entity under English law, and therefore cannot contract under their own name

⁸ These funds have a separate legal entity as opposed to Unit trusts

⁹ Aberdeen Standard Investments (2020), M&G Investments (2020), BMO (2020)

¹⁰ However, unlike investment trusts, the APs intervene to create or redeem shares thus eliminating arbitrage opportunities

¹¹ Securities and Exchange Commission (2012)

¹² Assets are entrusted to them

¹³ It is common for the ACD to be a sole director

Fund type	Investment trusts	ETFs	Unit trusts	OEICs
Fees	Ongoing charge (Management fees included)	Ongoing charge Transaction costs	Ongoing charge Custodian/depository charges Entry/exit charges Bid offer spread	Ongoing charge Custodian/depository charges Entry/exit charges Bid-Offer Spread
Dividends	Allowed to retain up to 15% of income which goes into the revenue reserve, therefore not obliged to pay out all income as dividends	Yes. There are two types of dividends issued to investors: qualified and non-qualified dividends ¹⁴	Yes, for funds structured as income units. No, for accumulation units since the revenue is reinvested ¹⁵	Yes, for funds focused on income. No, for funds focused on accumulation since the revenue is reinvested.
Taxation	Corporate tax Dividends exempted Realized capital gains exempted Non-dividend income taxed at 10%	Dividends exempted Realized capital gains exempted Non-dividend income taxed at 10% ¹⁶	Dividends exempted Realized capital gains exempted Non-dividend income taxed at 20%	Dividends exempted Realized capital gains exempted Non-dividend income taxed at 20%

¹⁴ Lasser (2011)

¹⁵ Hargreaves Lansdown (2020)

¹⁶ Vanguard (2020)

2.3 Importance and evolution of corporate governance

Since the 18th century, the presence of corporate governance in the business world has been existent as many enterprises were afflicted by managerial accountability shortcomings. The creation of the Joint Stock Companies Act (1844) gave rise to the concept of the separation of the role for investors and their agents, and the Limited Liability Act (1855) gave investors assured protection against debt. These laws provide evidence of attempted solutions for governance issues. In the late 1970s, the US saw dozens of cases where personnel in US public corporations were engaged in bribery and other related misconduct which led to Congress putting greater emphasis on the role of independent directors in firms.

When dealing with corporations it can be assumed that corporate governance would be a subject of constant significance due to its implication on the long-term sustainability of an institution. The framework of corporate governance should present the common objectives of the principals and agents allowing for interaction between the two parties which helps the organization strive. The concept gained significant interest at the beginning of the 1990s in the UK. Cheffins (2015) find that, due to the difference in ownership structure, the debate regarding governance in the US during the 70s was not directly relevant in Britain. At that time there were more family block holders in the UK with few dominant shareholders as opposed to the US firms. By the time corporate governance had hit the UK, it was known that not only would it grow in intensity but would lead to the remodeling of many aspects of business mainly the board of directors (Holberton, 1991; Waters, 1991).

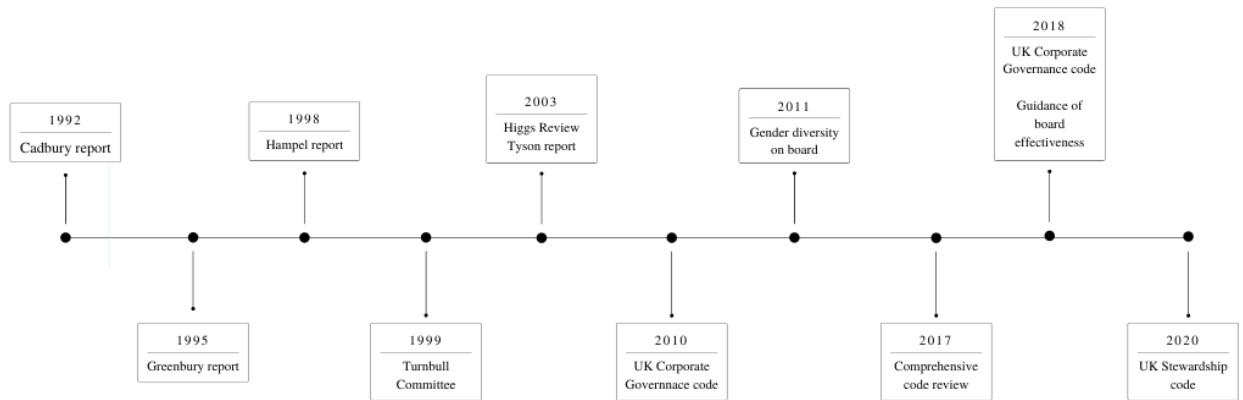


Figure 3 Timeline of UK corporate governance history

The Cadbury Committee was launched by the London Stock Exchange, Financial Reporting Council, and members of the accountancy profession in May 1991, to provide short recommendations for best practices, after concern was raised regarding the erosion of confidence of the investors in corporate disclosures that were made available to them. The issuance of the Cadbury Code was deemed by critiques to be vague and unambitious. An interview by Sir Adrian Cadbury added that the code was “set to be aspirational” and was not the final tick boxing document but a measure of reference to keep improving the standard of governance which varies for different firms (Cadbury, 2013). The code focused on governance issues with a focus on executive and non-executive directors and their increased responsibilities, the separation of the dual role of CEO and chairman as well as the setting sub-committees.

Subsequently, other reports were developed. The Greenbury report (1995) had a different focus. They aimed to find a balance between remuneration and the performance of directors, which was a concern raised by investors. The report included recommendations regarding the remuneration committees and the need for involving more non-executive directors to avoid a potential conflict of interest. The Hampel report (1998) represented the findings from the implementations by various organizations and individuals; they further developed codes regarding directors and committees; adding that the nomination,

remuneration, and audit committees should comprise mostly independent non-executive directors. The combination of these three reports leads to the Combined Code, becoming mandatory for all listed companies (ICAEW, 2018). The Turnbull Committee was set up to guide the implementation of the code.

In 2003 two reports were brought out to deal with non-executive directors. The Higgs Report provided specific guidelines regarding the composition of the board and proposed that half of it should be composed of Non-Executive Directors. They highlighted that it was necessary to review the independence of the directors as this can affect their objectivity when making decisions. Also, the level of compensation for them should not only be sufficient to attract these directors but also fairly to compensate for their efforts and performance. The Tyson report focused on the recruitment and development of NEDs highlighting that board efficiency can be improved through the inclusion of directors from various backgrounds and gender due to their varied knowledge and experience for tackling problems.

After the financial crisis in 2008, Sir David Walker was appointed to review the governance of the banking sector; in parallel, the Combined Code was also under review and was renamed as the UK Corporate Code (2010). The new code included some recommendations about the appointments of the board, it has suggested that firms should appoint directors on merit whilst also focusing on diversity. The matter of diversity was further explored in the Gender diversity on board report (2011), FRC along with ICAEW and Deloitte argued that voluntary actions from firms could speed gender diversity rather than using legislation as a means of enforcement. It was also added that the inclusion of more women is not just 'nice to have' but it provided value to the firm.

The FRC conducted a review of the governance code in 2017 to improve governance quality due to economic changes. This revised code included sections on board composition, internal control, and remuneration, these principles are also present in the updated UK Corporate Governance Code (2018). The report covers key points regarding the composition of the board, it is suggested that the tenure of the chair should not exceed nine years and the election of directors should be justified by their contribution to the firm

and its long-term success. Provision 36 of the code also pushes the idea that executive director compensation schemes should support long-term shareholder interests.

The FRC stated that some of the provisions set in the UK Corporate Governance Code (2016) may not apply to investment companies such as investment trusts; therefore, they allow for these funds to follow the Corporate Governance Code set by the Association of Investment Companies (AIC) to be utilized to assist the funds in meeting their obligations. The report highlighted that closed-end funds had a different board structure as there were no executive directors or employees, the fund is governed entirely by NEDs. The provisions in the report are focused mainly on corporate governance characteristics such as the board of directors and their remuneration, and unlike companies, these funds do not have any customers but only shareholders; we can therefore propose that the agency theory would be appropriate to be utilized in this study. The discussion about corporate governance theories is presented in greater detail in the next chapter.

In tandem with the improved corporate governance code, a supplementary report on board effectiveness¹⁷ was also presented in 2018 to further assist the board of directors in refining their practice as monitors. The UK Stewardship Code (2020),¹⁸ which is a revised code, was formed to reflect the significant change in the investment market. It has been recognized that asset managers possess an important role as “guardians of market integrity.” It set expectations for asset managers in collective investment funds such as investment trusts, concerning responsible allocation and oversight of capital.

“This government will build an economy that works for everyone, not just the privileged few.” – that was the opening statement of the Green paper proposed by the UK government in 2017 with regards to reform in corporate governance. Amidst declining trust, in big companies, the government has also set out to strengthen corporate governance.¹⁹ Some critical areas under review are yet again ownership and executive pay; it has been proposed that the strengthening of the remuneration committee and engagement with shareholders were crucial. This debate was fueled by the mismatch

¹⁷ Guidance on board effectiveness (2018)

¹⁸ FRC (2020)

¹⁹ Department for Business, Energy & Industrial Strategy (2017)

between the performance of the FTSE and the remuneration of CEOs managing FTSE100 companies (Deloitte, 2016).

The production of numerous reports throughout the years and intervention from the government showcase the importance of a fully functional system of corporate governance. Primarily, it helps safeguard the rights of the investors who are the capital contributors, but it also maintains confidence in the capital market which is crucial for the survival of the economy. The findings from the Horwath report in 2003 and 2004 indicated that companies with good corporate governance were able to achieve better share prices based on 250 Australian companies; this, in turn, helped attract more investors. The globalization of economies also allows access to an international capital market which produces greater risk exposures.

To conclude, the topic of corporate governance remains a core feature amongst firms and funds around the world due to its importance. The effective running of these institutions, where assets are being managed by an agent, beckons for a well-functioning economy that helps maintain the trust of investors.

2.4 Variables selected from the reports

Figure 3 illustrates the timeline of corporate governance reports produced in the United Kingdom. Over the years, these reports have highlighted several significant topics that have been on the agenda year after year. Initially, the Cadbury report (1992) was developed in response to a lack of trust in the responsibility of agents in companies, the report recommended that most of the board be comprised of independent directors. The emphasis on outside directors has remained prominent. It was stated in the UK Corporate Governance code (2016) that at least half of the board should be non-executive directors. Therefore, in this study, we will focus on the presence of NEDs on the board.

Although past reports such as the UK Corporate Governance Code (2010) briefly mentioned gender diversity in the supporting article, the revised code makes further elaboration on the diversification of the board by considering several factors including gender, age, ethnicity, and education. The Gender diversity on boards report (2011) along with the Corporate Governance reform (2017)²⁰ further highlights the importance of gender diversification on the board and added that value can be enhanced through diversity. Consequently, we will also focus on gender diversification by focusing on the number of female directors on the board. We also consider factors that contribute to diversification such as age, tenure, occupation, and nationality.

2.5 Summary

The disproportion in ownership between the different types of funds can be linked to several factors, their structure being one; open funds have proven to be beneficial in attracting new investors since there is no restriction in the number of new shares that the funds can create. This entails that the fund can draw a larger pool of money to make investments from investors, without having to take debt. Although investment trusts charge lower fees, which should attract more investors, financial advisors tend to stay away due to the unfavorable commission structure. Thus, even with greater transparency from exchange listing, there is a lack of interest due to a lack of marketing strategy.

The section above showcased the most popular investment funds in the UK. There are both open-ended funds (unit trusts, OEICs, and ETFs) and closed-ended funds (investment trusts). The interest was first placed on the investment funds in the UK due to the diversification benefit they provide to investors. The growing appetite of investors for investment in funds is apparent from the £7.7 trillion that are managed by various

²⁰ The Government response to the green paper consultation

funds, which can be viewed as part of the reason behind the interest shown to these investment vehicles. Upon research, it was decided that the focus in this study would be on investment trusts.

Both ETFs and investment trusts suffer from share price deviation from the NAV, however, the presence of authorized participants in the ETFs and their intervention prevent the deviation to be long-lasting. Therefore, the discount or premium in ETFs disappears quite quickly. However, for investment trusts, the discount is persistent, they do not benefit from the intervention of APs in reducing the differences between NAV and market price which leads to the funds trading at a discount/premium. Therefore, we decided to investigate the reasoning behind such persistence. We posit that corporate governance may contribute to the anomaly. Since the literature is quite barren on this topic, we aim to fill the gap.

The study aims to tackle corporate governance through the agency theory which is discussed in the next chapter in greater detail. Unit trusts are governed by trust law as opposed to OEICs and investment trusts which are governed by company law. The unit trust is overseen by an independent trustee and the assets are held by the trust; it can therefore be argued that the investors are not the owners of the asset. Therefore, it would not be possible to make assumptions about the relationship between agents and principals. Unlike unit trusts, OEICs have a board of directors present. However, the board may not always be independent, as they are formed by directors selected by the fund itself. For instance, the Authorized Corporate Director for Aberdeen Standard OEIC V is Aberdeen Standard Fund Managers LTD.

It can be argued that investment trusts would be the most suited funds to investigate. Furthermore, the closed structure of investment trusts should provide the fund managers with a more stable pool of investment compared to the open-end funds; but there is a deviation of the share price to the NAV. This study focuses on several corporate governance characteristics such as board size and independent directors to find whether they influence discount and the fund's performance.

CHAPTER 3: PERFORMANCE OF INVESTMENT TRUSTS USING ACCOUNTING-BASED MEASURES

3.1 Introduction

Since the inception of Foreign & Colonial Government Trust, the first investment trust in 1868 on the London Stock Exchange, the closed-end fund industry has seen considerable growth. It was recorded that by 2001, there were 470 funds listed on the LSE with a market capitalization of over £56 billion. However, despite their long history in the managed funds industry, investment trusts have experienced a decrease descent in their attractiveness due to the rise of open-end funds. Table 3 shows that during a period of 9 years, CEFs have been experiencing a fluctuation in the number of funds but we observe an increase in the volume traded. Between 2012-2021, there was an increase of 264% in volume traded on the London Stock Exchange for these funds. Nevertheless, this is not closed to catching up with their open-end counterparts.

Table 3 UK Closed-end funds and their trading volume

Year	Number of CEFs	Volume traded (£)
2012	462	2,545,052,667
2013	444	2,928,271,875
2014	425	3,698,233,588
2015	422	3,966,372,159
2016	394	4,913,274,046
2017	401	6,011,004,689
2018	413	7,423,680,204
2019	421	6,043,272,290
2020	430	7,679,643,119

The reduction of funds over the years can be linked with several factors, such as mergers allowing the funds to be cost-efficient. As in the case of Standard Life UK Smaller Companies Trust with Dunedin Smaller Companies in 2017, where the shares of the latter rose by 8% and helped boost its performance by decreasing discount from 21.5% to 9% (Campbell, 2018). Furthermore, several funds have opted to change their structure to open-end funds to also reduce the discount anomaly. Despite the discount anomaly and the decreasing interest from investors, intriguingly several investment trusts such as Foreign & Colonial IT and JP Morgan American have survived over 100 years in the fund industry and are still going strong. This study aims to find a link between corporate governance and the performance of the funds.

The literature on CEFs carried out in Chapter 3 have shown that the studies on CEFs have been focused on the discount anomaly and some studies (Khorana et al., 2002; Gemmill and Thomas, 2006; Berk and Stanton, 2007) have attempted to link some corporate governance characteristics such as compensation with discount. To our knowledge, there is no study focusing on the board characteristics such as age, tenure, and presence of female directors on the board as corporate governance characteristics that can affect the performance of the funds. Therefore, this focus will make this study differ from other papers.

This study aims to contribute to the ongoing and popular debate on corporate governance as there is a belief that agency problems could be affecting the performance of the funds, in contrast with the conclusion made by economists that the irrationality of investors plays a role in the existence of discounts, which will be further explored in Chapter 5. Corporate governance was chosen to be studied due to its importance in controlling how institutions should operate; without proper rules and standards firms and funds can collapse due to

the occasional greed of managers, and this feeds into the potential failure in the financial ecosystem.

In the investment fund literature, some papers such as Brickley and Schallheim (1958) have shown that discount can be reduced by the process of open ending, but the presence of entrenched managers does not allow this to occur and therefore they suffer from persisting discount. Bauer (1984) found that the funds begin to generate significant and positive abnormal returns before formal announcements of the change for an open ending. In this study, we will attempt to comprehend the effect that corporate governance has on performance which could indicate whether entrenchment is persistent or not.

CEFs are under-researched as compared to their counterpart mutual funds, and throughout the literature, corporate governance has been a dominant subject in firms and other types of investment funds. Upon investigation, it was found that investment trusts bear some form of unpopularity amongst investors which could be due to less rigorous promotion on behalf of brokers and the funds themselves. However, their presence remains a pillar in the fund world being the pioneer of collective investment schemes. The problem in acquiring data could also be a factor that made research in this area less desirable. In this study, data has been hand-collected for 123 equity investment trust trading on the LSE for the year 2000-2017, which is a unique dataset; therefore, the study can also help contribute to the literature on equity funds in the UK.

The first research question focuses on the effect of governance on the performance of investment trusts which will be measured using accounting-based indicators such as ROA and ROE. The average holding for UK investors was found to be just above 3 years in 2018 (Investment Association, 2019), therefore a long-term view of performance can be analyzed using these ratios to detect whether management is maintaining their strategic decisions. This will help indicate whether the governance in the funds is effective in enhancing the value of the shareholders for investment trusts listed in the UK during 2000-2017, encompassing significant events such as the financial crisis of 2008 and the reformatory changes in the codes. Since the Cadbury Report was published in 1992, there has been greater attention on key corporate governance characteristics such as the board

of directors (Higgs report), remuneration (combined code), and gender (Gender diversity on board report).

We contribute by filling the gaps in the literature regarding corporate governance and the performance of investment trusts in the UK. These funds have survived for 150 years, and it will be interesting to see whether corporate governance played a role in their performance. Furthermore, it will also be interesting to investigate the key events such as the financial crisis at a later stage. It has been argued by Kirkpatrick (2009) that although other contributing factors led to the crisis, corporate governance played a pivotal role.

3.2 Literature review

3.2.1 Investment funds

Over the years, investors have been utilizing investment funds as an investment vehicle rather than investing on their own due to time and cost constraints. They entrust their money to the managers who make investment decisions based on their superior knowledge. The AIC reported that in 2017 there was a surge of £46 billion of investment in funds by UK investors and a further £15 billion from institutional investors; compared to £15.7 billion of investment made in funds in 2016. The funds in the bond sector were able to amass more investors especially since the Brexit vote in 2016, due to their lower level of risks in comparison to equities (Beioley, 2018).

Similar to companies, funds also have a separation of ownership and control and are therefore prone to conflict of interest; managers may have an incentive to expand the fund size due to the management fees that are determined by asset size (Mahoney, 2004) whereas investors will wish to attain maximization of their share value. Corporate

governance is therefore essential in aligning and checking whether fund managers are utilizing capital properly and managing investments effectively. It is found that funds that are well-governed can execute their fiduciary duties towards investors, which was found to be lacking for poorly administered funds (Chou et al., 2011).

Wellman and Zhou (2007) detected outperformance from funds with higher corporate governance ratings relative to funds with bad ratings, highlighting the significance of good governance on performance in funds. When funds are well-governed and exhibit good performance, it generates confidence amongst investors and gives the funds a good reputation which in turn translates into a higher share price. There has been some connection between ethical decisions and corporate governance, Filatitchev and Nakajima (2014) find that the board cannot only influence performance but also ethical decisions which can reassure investors about the authenticity of these agents whom they rely on for the defense of their interest.

The section below will include the current literature on corporate governance in different types of open-end and closed-end funds.

Mutual funds

The history of funds has shown that mutual funds have been very popular over the years and have surpassed assets under management compared to closed-end funds, leading to various studies being conducted on their performance. Jensen (1967) focused on the performance of mutual funds over 19 years. It was highlighted that the evaluation of portfolios with risky investment was problematic since the performance was based on two distinct dimensions: the ability to increase return through successful prediction and minimization of risk through efficient portfolio diversification. He concluded that the forecast of future prices of security was not achieved well enough to outperform a buy-and-hold policy.

On the other hand, Ippolio (1989) detected conflicting results regarding outperformance. The evaluation of 143 mutual funds between the years from 1965 to 1984 showed that these funds did outperform index funds using Jensen alpha as a measure of performance. However, although there was a positive alpha, it was not enough to cover charges in the mutual funds. Therefore, it leads to the notion of non-outperformance. Grinblatt and Titman (1989) also used Jensen to measure the performance of actively and passively managed funds. Although fund managers exhibited superior investment skills leading to positive risk-adjusted returns in both growth and aggressive funds, their high expenses wiped out the abnormal performance.

Hendrikson and Merton (1981) developed a framework to test the forecasting ability of managers which was based on the forecast of stocks and bonds in the market, one of which outperforms the other. Malkiel (1995) found that it was possible to earn an excess return in mutual funds using a different approach during the 1970s. However, those strategies did not work during the 1980s. On the contrary, during 1982-1991 there was underperformance in the average mutual fund relative to the S&P 500 by almost 2% per year. Therefore, it was concluded that overall, there was not a reliable strategy that mutual fund managers could use to outperform the market.

Hwang et al. (2018) exhibit the effect of better connections acquired in elite universities, on the performance of mutual funds. They observe a link between connection and IPO allocations through two dimensions: firstly, if the fund manager attended the same university as one of the IPO underwriters' officers; and secondly if the fund and the underwriter had prior dealings. Reuter (2006) had also shown that the connection of mutual funds with brokerage firms can help with the facilitation of IPOs. When there is an educational link, it has been found that analysts have been able to outperform by up to 6.60% on their recommendations (Cohen et al., 2010).

The board of directors in mutual funds focuses mainly on keeping the costs low which is beneficial for the investors (Radin and Stevenson, 2006); the presence of a small board is linked with lower costs (Tufano and Sevick, 1997; Kong and Tang, 2008). However, John Bogle (Vanguard, 2000) added that although there is a board of directors present in the funds, investors have experienced an increase in their fees year after year; pointing

out that those directors have lost track of their original objective which is to protect the interest of the shareholders. Therefore, the board of directors themselves could be posing a problem (McGeehan, 2001).

The requirement for mutual fund boards to compose of mainly independent members (75%) has been imposed since 2006 (ICI, 2018). Their presence helps in better negotiation for compensation or fees. The findings from Meschke (2007) examining the boards of 169 mutual funds shows that lower costs are present when there are smaller boards. Ferris and Yan (2007) recorded similar results when using a larger sample of 448 small and large fund families, the board size was positively related to the fund expense ratio.

Ding and Wermers (2014) find that when there is a greater proportion of non-executive directors on the board, there is a higher probability that poorly performing managers will be replaced. Adams et al. (2018) find that since the business structure of mutual funds entails the delegation of the management assets by fund managers who tend to be a separate entity, the presence of independent directors can fulfill the role of external monitors. Haslem (2018) explored the adverse influences that can impact the performance of the mutual fund. They include lacking independent directors, and directors who are not adequately empowered can lead to poor performance.

Duan and Jiao (2016) explore the role of mutual funds as proxy voters and their choices to vote against management. The Investment Company Fact Book reports that mutual funds dominate the investment fund scene in the US with a total net asset representing 83% (\$18.7 trillion) of all US registered investment companies. These funds are also the largest investors in the US financial market, and when it comes to dissatisfaction with management in the firms or funds they invest, they can either divest away from the institutional or voice out their discontentment and influence corporate decisions. The authors found that mutual funds that possess less ownership tend to exit their investments.

Roiter (2016) approaches governance in mutual funds in a different way; he finds that mutual funds have a hybrid nature, where they are a separate legal entities like companies, but they are also financial products. Therefore, he put forward the idea that corporate governance and fund corporate governance may not necessarily share the same premise, especially when observing the board of directors. Generally, a board of directors consists

of a large portion of independent directors, but the author fails to understand how these independent directors can exercise judgment and decisions over investment strategies or policies, as often, independent directors do not necessarily come from a finance or investment background.

The Securities and Exchange Commission chairman, Arthur Levitt idealized independent directors as the first line of defense in mutual funds. However, the case of Yackman Fund painted a different picture (SEC, 1995). It was seen that despite their well-intentioned effort to deliver their fiduciary duties to stand up for the shareholders, their exercised authority was in vain. The board wanted to replace the existing advisors with an outside director, which they deemed would have been a better choice. However, the management and shareholders opposed the idea and voted in favor to retain the advisors. Investors very often choose funds due to their asset or fund managers or their reputation in the market. Consequently, the size of the board is an indifferent factor (Carter, 2001).

Exchange-Traded Funds (ETFs)

Charupat and Miu (2013) identify three active strands of the literature on ETFs: price efficiency, performance, and effect of ETF trading on their constituent stocks. Similar to CEFs, ETFs can also experience price deviation from their NAV. However, Ackbert (2000) and Elton et al. (2002) propose that the presence of authorized participants (APs) to carry out the creation and redemption process, prevent the occurrence of such deviations as the price discrepancy is taken away. The APs are typically large institutional investors such as investment houses, and they work closely with the ETF provider to improve the liquidity of the shares of the ETFs (Vanguard, 2014). The APs can create and redeem shares directly with the ETF through large trades to reduce the deviation of the share price from the NAV (Broman and Shum, 2018).

Shin and Soydemir (2010) measure the performance of 26 ETFs using Jensen's alpha, they detect significant differences between the performance of the funds and their benchmarks. They found substantial negative alphas showcasing tracking error, which may be indicative that managers are not able to mimic the benchmark index when replicating their ETFs. When comparing Asian and US funds it was seen that discounts and premiums were more persistent in the former due to the Asian market being noisier but also due to an appreciation in the US dollar leading to the increase of the NAV.

Engle and Sarkar (2006) reported an average price deviation of 0.35% in international indices as opposed to a deviation of 0.01% for domestic ETFs, also noting that deviations were more persistent by several days whilst in domestic ETFs, it only lasted for several minutes. The variance of the price is more significant and more volatile in ETFs tracking international indices since the NAV is calculated using prices from earlier closing times than the US stock market. Even though NAVs are adjusted for the prevailing exchange rates, they do not entirely incorporate other information arriving at the US market when it is opening. The mechanism of arbitrage is not practical since the hours of trading are not the same.

Ackbert and Tian (2008) found that the international ETFs tracking emerging market indices had larger price deviations with higher volatility than those tracking indices of a developed market. They reported statistically significant first-order autocorrelation of price deviation; they argue that part of the cause of autocorrelation can be associated with non-synchronous trading hours. Madura and Richie (2004) report that international ETFs are much more prone to extreme price movements as opposed to broad-based ETFs, a significant portion of which is reversed in the following trading session suggesting the existence of overreaction.

Levy and Lieberman (2012) use intraday data to examine the pricing of 17 international ETFs (8 European and 9 Asian) during trading hours when they overlap. They reported that during those hours the NAV returns (returns in the foreign market) have the biggest influence on the performance of the ETF. And when the international market closed the performance from the US market accounted for a large part of the returns of the ETF.

Their finding is linked to the hypothesis that during trading hours when there is no overlap, the traders overreact to US market sentiment.

When it comes to actively managed funds, their performance is dependent on the ability of the fund managers in selecting stocks that could earn an abnormal return. Wermers (2000) and Bansal and Marshall (2015) support this proposition and show that between 1975-1994, mutual funds have been able to gain higher returns than the market and it is attributed to the managers' superior stock picking ability. However, they tend to charge a higher fee which leads to a more significant deviation from the NAV. Furthermore, leveraged ETFs are even more controversial since they have to be rebalanced daily to maintain a constant level of leverage.

The existing literature on ETFs has been focused solely on their performance. Harper et al. (2006) have compared the performance of ETFs and CEFs, but they have utilized the Sharpe ratio to check for higher risk-adjusted returns. However, through the literature, we have not come across any study that focuses on whether corporate governance affects performance. This could be due to the difficulty of acquiring governance data, which is also affiliated to its quite recent entry in the UK financial market as opposed to other types of investment vehicles such as CEFs. Since there is a gap in the literature for this type of fund, the link between the performance of ETFs and corporate governance can be carried out in further studies.

Closed-end funds

The financial market has two types of participants; the non-professionals account for the most significant amount where they incur substantial research costs in choosing stocks based on information about prospects; their activities create random fluctuations in the price. On the other hand, there is a small group of professionals who have a fair idea of events to come and also incur low costs; they make profits by observing the random walk

of prices produced by the non-professionals (Cootner, 1962, Page 22-45). The non-professionals often cause prices to be trading more or less than their intrinsic value, but the prices always revert when the professionals step in and attempt to make a profit.

Black (1986) coined the term noise trader for market participants acting on noise instead of the news; hence the fluctuations in their sentiments lead to variations in the demand of the fund which in turn is reflected in the discount level. Rational investors can potentially buy funds at discounts and sell short the underlying portfolio to make a profit. However, DeLong et al. (1990) find that the unpredictability of changes in investors' sentiment does not allow arbitrageurs to seize the opportunity. Furthermore, by the time the investors liquidate their position for the short position, sentiment could turn even more negative and therefore will incur a loss.

Gemmill and Thomas (2017) have further attempted to explore the anomaly of discount and premium; they focus on IPOs of UK-traded closed-end funds between the periods of 1984-2006. After their IPOs, closed-end funds typically trade at a value lower than their NAV (discount), it remains intriguing why investors choose to invest in an investment whose value will be lower. There is robust support for the argument that investors are not entirely rational when investing. But there is a weak association with the other theories which propose that investors are willing to be exposed to initial outperformance or gain temporary access to illiquid assets.

Boudreaux (1973) explores different possibilities such as management fees, portfolio diversification, and irrationality of the market. The author pointed out that the purchase and sale of securities in funds are done by the managers. Thus, the differences in performing these tasks can be linked to the funds trading at discounts. Moreover, when management fees are too high, it leads to potential agency costs which can contribute to discount trading. Kraussl et al. (2018) discuss some discount control mechanisms such as share repurchase which helps reduce the undervaluation of the shares price relative to the NAV; however, they find that the implementation of some devices is costly.

We believe that corporate governance will have an impact on discount, as pointed out by Boudreaux (1973). There is a possibility of management fees affecting discounts; this fee is under the supervision of the board of directors. If they detect that the investment

managers of a fund are charging too much, then they can reduce the discount by changing the managers. Furthermore, as Nanda et al. (2000) suggested, the investors will choose to invest in a fund where they believe that the managers possess the skills; therefore, it is the board's responsibility to ensure the right capable people are managing the investments in the funds.

When assessing the performance of individual funds, it can be seen that some managers can quite consistently beat the market by picking high-value stocks. This challenges the EMH since managers should not have been able to earn an abnormal return by spending funds on research. Studies by Bal and Leger (1996) and Chay et al. (1999) detect that funds had been underperforming compared to the market. It was observed that when the performance of UK investment trusts was assessed using Sharpe ratio, Treynor's measure, and Jensen's alpha, the Financial Time All-share Index outperformed the funds most of the time. It is argued that the funds underperformed compared to the index due to having poor diversification, which can be seen as a reflection of the poor assessment of investment choices and future performance by fund managers.

Bers and Madura (2006) find that the closed structure of investment trusts allows managers to work with a more stable pool of capital that can be engaged in long-term investments and also in illiquid assets which helps earn a higher return. Therefore, the lack of pressure for constant redemption allows better control of the portfolio which can lead to persistent performance. Their later study for US CEFs, linked performance persistence with a lower expense ratio as well as being listed on the NYSE, which could be due to the efficiency of the market. When fees are low investable capital persists, Volkman and Wohar (1995) also found greater persistence in performance when there are lower fees in open-end mutual funds.

When investment trusts are issued, they tend to trade at a premium, the price reflects the fees and costs associated with the initial offering of the shares. It is recorded that premium for US funds can reach up to 10% whilst in the UK it is around 5%; after the floatation of the shares, they start trading at a discount (Dimson and Paluello, 2002). This discount puzzle in CEFs has been linked with the EMH with the suggestion that managers tend to over or under-estimated NAV (Malkiel, 1977). The liquidity of the assets can also be a

factor, Seltzer (1989) argues that these assets are usually mispriced due to the difficulty in deriving their fair values and their poor reputation.

Datar and Professor (2001) assess the assumption which proposes that funds trading at a premium are more liquid than their underlying assets. They found that when measuring the liquidity of US CEFs which are proxied by their trading activities; there is higher liquidity for funds trading at a premium between 1988-1991. Studies from Diether et al. (2009) and Alexander and Peterson (2017) detect that funds experience short selling when there is an increase in their premium. Investors involved in short selling are deemed to be “informed”, they earn positive abnormal returns. This leads to the decline in premium within 5 days of the selling.

Fletcher (2018) examines the diversification provided by international equity UK CEFs, compared with domestic UK funds, the international-focused fund has a higher market value. CEFs allow investment in illiquid assets and are not bounded by liquidity issues like open-end funds due to the creation and redemption process. However, although access to international assets is made possible, the existence of discounts/premiums is a problem; the author found that short selling does not affect the level of diversification benefit the funds offer.

Pratt (1966) explains that CEFs trade at a discount because of the lack of understanding by investors. The market for these funds is dominated mainly by non-professional participants who usually acquire the wrong information at a high cost. Black (1986) defines these participants as noise traders due to their reliance on noises from the market and lack of access to inside information leading to irrational behaviors. Gemmill and Thomas (2002) assembled 158 closed-end funds in the UK to show whether noise trading leads to fluctuations in the discount. Consistent with DeLong et al. (1990) and Lee et al. (1991), they found that the actions of irrational trading are met by arbitrageurs who trade against them in an attempt to drive prices to their intrinsic value.

Flynn (2012) pointed out that there is a possibility of a more significant impact from investors' sentiment in the pricing of US share price for funds rather than in UK's funds due to the larger proportion of retail investors (noise traders) in the US. Guirguis (2018) focuses on capturing the variation in discount by extending the Carhart four-factor model

with noise trader sentiment and expenses. It was found that on average their model explained over 60% of the variation in the excess discount for both funds in the UK and US markets. It has been proposed that discount arises due to unpredictability in expectations of investors, especially the noise traders, who tend to overestimate or underestimate expectations.

Rubanov and Nnadi (2017) also utilize the Carhart four-factor model to examine the performance of UK investment trusts, focusing mainly on the effect of international financial reporting standards. Their finding is in alignment with the efficient market hypothesis, whereby the adoption of the IFRS leads to a decrease in excess returns. Gemmill and Thomas (2018) argue that rational investors are aware that funds that have an expected life of 20 years or less are deemed to be seasoned, the expectancy of a shorter lifespan prevents discount from enlarging. They also determined that a large payout for dividends leads to the idea of reduced expected lives and therefore discount is reduced too.

It is suggested that the discounts are reflections of the popularity of the funds, translating in the low or lack of sales. During the 1980s when investors had lost interest in investment trusts; the funds were trading at a high discount of 50%. However, when these funds started offering new investment objectives and presented a tax-friendly scheme to investors, their popularity increased again, and the discount went back to 5%. However, Anderson (1984) argued that investment brokers do not prefer to market investment trusts, therefore, they do not encourage “buy” due to the low commissions paid to them hence reducing their incentive. When commissions were cut in 1975 the discount level widened.

Bredin et al. (2014) analyzed a sample of 298 CEFs on the London Stock Exchange between 1990-2013. They explained the performance and persistence in the performance using the False Discovery Rate method to assess alpha performance. Their findings show that up to 16% of the funds truly achieve positive alphas whilst negative alphas are experienced by about 3% of the funds. It is proposed that CEFs unlike their open-end counterparts, can use leverage and do not need to meet the creation/redemption process; therefore, they have a better ability to generate alpha. Therefore, these funds should be quite attractive to retail investors.

The discount phenomena have also been tackled from the governance angle, Gemmill and Thomas (2006) used the UK closed-end funds to link board structure and block holdings with two measures of performance which are discount and management fee. They concentrate more on the latter as fees are usually set by the directors in the fund. It was found that higher fees accounted for a lower return, when costs increase by 1% it leads to an approximated decrease of 0.6% in return especially when a large board is present. This indicates that a large board is not impactful in negotiating with managers to have lower fees which could result in better performance.

Del Guercio et al. (2003) also associate smaller boards that are believed to be more independent, with lower expense ratios; furthermore, there was a negative relationship between fees and performance. Souther (2019b) also explores the effect of independent directors on enhancing the value of 682 US closed-end funds between 1997-2014. It has been observed that a 10% increase in independent board members led to the fund values rising by 40 basis points. They also found that the likelihood to increase independent directors is reduced when the fund already has a large board.

In CEFs both the managers and directors are agents of the firm, therefore their interests can be aligned if they are shareholders themselves. Ju and Zhao (2014) investigated the ownership of directors and found that when there are more ownership funds trade at a lower discount due to more effort on the director's part to monitor managers. They add that when directors have a greater stake at risk, they often are more prone to take actions such as repurchases or agreeing to final proposals in an attempt to reduce the discount. The results show that when ownership increases there is a 52.5% increase in the probability of buying back outstanding shares.

As for block ownership, Barclay et al. (1993) find an opposite observation, due to the extraction of specific benefits from funds, directors are sometimes not willing to take actions that can help reduce the fund's discount, therefore when there are more block holdings, larger discount manifests. Arnaud (1983) argued that there had been a shift in the proportion of institutional investors in CEFs. There was a dip below 25% in 1984 from 60% in 1964, but by 1990 there was a rise up to 75%. These large investors can contribute

to the influencing of the prices as well as the discount by the amount they are willing to pay for the share of the CEF.

The three largest players in the passive index funds are Blackrock, Vanguard, and State Street, their large ownership in firms and funds such as closed-end funds mark them as institutional owners. Fichtner et al. (2017) argue that these large owners tend to side with the management, and their objectives are prone to be affected by the executive directors. Davis (2008) has also suggested that having the potential to exercise their vote and influence decisions does not necessarily translate into the exercise of power. He added that “Wall Street walk” was easier than activism. “Wall Street Walk” refers to the action taken by a large shareholder to sell their holding in a company, rather than attempting to be active and confront managers when they are not acting in the best interest of the shareholders (Admati and Pfleiderer, 2009).

Investors are attracted to funds where managers exert superior skills, which can potentially produce a good performance in the future and lead to a decrease in the level of discount (Gruber, 1996). This proposition was supported by an earlier study by Chay (1992) whereby underperformance was present for fund trading at a discount as opposed to those trading at a premium. It is suggested that the level of deviation from the NAV is a projection of how investors perceive managers will perform, the asset selection skills have been associated with the deviation from NAV. If an asset class is doing well on the market, this cannot be related to superior skills from managers; the superiority will only be detected when they can outperform passive strategies with the same asset mix.

Funds can be managed internally or externally, Draper (1989) found that in the UK the funds are mostly handled by external specialists. CEFs in the US prefer to be internally managed as they fear that there will be conflicts of interest between external managers and shareholders, however, the board of directors must be independent. The board of directors and internal managers will be working closely which can potentially influence their decision-making process. But the relationship with an external manager will be more distant allowing for better oversight. Under the UK Corporate Governance Code (2018), if directors are not independent, they should be reelected during the annual general meeting.

Yang and Hou (2016) found a positive relationship between pay-performance sensitivity and fund return volatility for US CEFs, the relationship was more prominent for funds investing in emerging markets and alternative investments. It has been suggested that paying the managers partly with the fund's shares can help with the alignment because as their holdings increase, they will be bearing more costs related to non-value maximizing endeavors. The increasing equity-based pay for directors can ensure that these directors act in the best interest of the shareholders as they would become shareholders too which will lead to an improvement in governance.

While some studies focus on certain areas such as ownership and remuneration, Gompers et al. (2003) construct a corporate governance index (G Index). This index included the takeover provision which was a proxy for shareholder's rights. It was found that with greater rights for the shareholders more abnormal returns were earned and the likelihood of takeovers was minimal. Cremers and Nair (2005) focus on ownership by block holders and utilize the G index. However, they detect that when firms had smaller takeover provisions such as more staggered boards that help restrict takeovers; it leads to outperformance as opposed to firms with more substantial takeover provisions.

Souther (2016) explores the effect of takeover defenses in 917 CEFs that have been alive for at least one year between 1997-2011. It is found that generally funds that trade at a considerable discount, their boards tend to be more defensive to avoid being replaced. The author highlights the case of the CEF Foxby Corp.; the shares of the fund were trading at a 15% discount and were charging a high expense ratio. The board decided to adopt a takeover defense which was associated with director nomination, if the nominee were approved by the board, he/she would only need a plurality vote, but if the nominee were selected by the shareholder, he/she would require 80% of voting approval.

There has been extensive coverage on REITs in the literature, these investment trusts make investments with exposure solely to properties. REITs are obliged to distribute 90% of taxable income to shareholders out of which 75% of the income must be derived from real estate. This restriction in investment allows for better control of the variation of the motivation of managers (Campbell et al., 2004). The authors found that these funds are less prone to a hostile takeover since they are limited free cash flows available to the

managers. As Jensen (1986) pointed out, a large availability of cash can deviate the intention of managers into embarking on projects that are not necessarily beneficial for the shareholders.

It is also necessary that the five largest owners in REITs may not own more than 10% individually or 50% in aggregate. Eichholtz and Kok (2008) argue that the legal restrictions regarding ownership structure prevent the formation of large block holders which then protect REITs managers from the scrutiny of the market for corporate control. Feng et al. (2007) find that because directors are required to focus on real estate, it narrows their opportunities to diversify their skills thus in an attempt to minimize the risk of losing their job they may entrench themselves by negotiating friendly takeovers.

Ghosh and Sirmans (2005) and Bianco et al. (2007) find that since the regulations limit the managers in the first instance, the need for corporate governance is less critical in REITs as opposed to firms. The restriction of investment in real estate and limiting cash holdings are two provisions that severely limit managers in increasing the firm size through acquisitions or boosting compensation; providing built-in protection for the shareholders. La Porta et al. (1998) reported that in countries such as Chile or Ecuador where the legal system is weak, the structure and legal obligation of REITS restrict managers from expropriating resources.

On the other hand, Bauer et al. (2010) who also focused on the performance of REITs add some criticism towards the legal structure of REITs. They argued that the obligatory payout of 90% is not applicable to free cash flow but the net earnings which creates a discrepancy in cash between the two and therefore managers can decide what to do with the extra money freely. Eichholtz and Kok (2008) also add that the restriction of ownership in the funds prevents large block holders from forming which could be detrimental for shareholders as there is less challenge on their part for the fund managers.

There have been several other studies in REITs focusing on compensation, Hardin (1998) focuses on equity-focused REIT and factors affecting the compensation of senior directors. The study utilizes a range of characteristics such as the number of years the fund has been trading since their IPO, ownership of top directors and also include a dummy variable relating to whether the directors on the board was a founder of the fund or not,

which helps detect any influence these directors may have on the remuneration. It was found that as ownership increased by 1%, there was also an increase of \$5583 in compensation, while the increase in dividend income by \$10000 reduced compensation by \$125.

The presence of a potentially high growth opportunity or the undertaking of riskier investments leads to the projection of larger EPS which can prompt for the presentation of compensation with stocks. Pennathur et al. (2005) analyze the remuneration of CEOs in REITs in the form of stock-based compensation. The results, however, showed that there exists a negative relationship between stock options and performance. It is argued that during the period of high growth, the funds often experience losses; therefore, the CEOs are motivated by receiving stocks as compensation. On the other hand, Feng et al. (2007) observed a positive relationship but there was no significant relationship with board size or tenure of the directors.

Some earlier studies on institutional ownership in REITs (Ghosh et al., 1997; Chan et al., 1998; Below et al., 2000) have focused on the aggregate holdings by institutions during the period of the 1980s and 1990s. Devos et al. (2013) explored institutional ownership during and after the financial crisis, intending to analyze the pattern of these shareholders during stress periods in the market. They found that before the event the number of shareholders increases but decreases significantly during the crisis; investors will choose to leave an investment where they have a combination of high risk and low return due to poor performance.

A report by JPMorgan (2009) showed that some investors think in opposition; due to “ample historical precedent,” they have some knowledge of volatility and know that the return level will revert to the norm at some point; thus, they choose to stay invested in the REITs. National Association of Real Estate Investment Trusts (2018) estimates that REITs are owned by 80 million Americans through the funds themselves or retirement savings. Therefore, it can be deduced that the preservation of corporate governance is as much important in REITs as it is in other types of funds or firms, to prevent managers from being entrenched. In order to avoid managerial entrenchment and reduce agency

problems, there is a need for legal regulations as well as internal corporate governance mechanisms.

3.2.2 Corporate governance theories

According to Blair (1995), corporate governance is a system of institutional, legal, and cultural arrangements that dictates what firms do and how they are controlled; this gives rise to the different aspects of relationships in a firm and leads to the proposition of several main theories regarding corporate governance. The FRC (2012) also agrees that corporate governance is a system by which institutions are controlled, the responsibility lies on the board of directors. Kiel and Nicholson (2003) argue that the study of corporate governance especially the board of directors can be complicated since it has been studied from different perspectives within the various discipline. The UK corporate governance code (2018) declares that the board of directors plays a fundamental part in upholding the governance especially when they exercise control over the managers.

As early as Berle (1932) had detected issues regarding the separation of control and ownership in firms, leading to the creation of the agency theory; most of the debates carried out in the literature focus from an agency perspective. However other theories such as stewardship theory, stakeholder theory, and resource dependence theory have been observed in the literature and stem out from varying disciplines from management to psychology. The sections below will elaborate on each of these main governance theories and will also indicate which approach will be more suitable to be used in this study.

Agency theory

The study of corporate governance in firms and funds is usually analyzed from the agency perspective, as this theory assumes that the agents in leadership roles tend to be self-interested which clashes with the goal of shareholder wealth maximization (Choi et al., 2017). The debate between Berle and Dodd during the 1930s started with the proposal from Berle (1932) that corporations should be vehicles to protect and advance the interest of shareholders, the pursuit of other functions would “*defeat the nature of the corporation itself.*” Therefore, managers are appointed to carry out those tasks using their knowledge and expertise for the interest of the owners. On the other hand, Dodd (1932) challenged this idea and added that the consideration of social responsibility and employees would lead to higher productivity; more profits would ensue.

The deviation in the goal of the firms often take place when agents elect to put their interest forward, (Shleifer and Vishny, 1997); this takes place when there is the overconsumption of benefits, an expectation of high rewards for less effort, and when an investment is done in unfavorable projects. Jensen (1986) argue that the primary source of agency conflicts is associated with a large amount of free cash flow available to the managers, the author proposes that reducing the amount of cash would reduce managerial abuse. The more money managers have in their possession the more investment risks they can take, providing a higher profit with the potential of earning a more substantial bonus.

The conflict created from excess capital can be mitigated by having appropriate dividend payout policies and setting the right proportion of financing through debt and equity. By having an ethical framework of corporate governance, there can be an increase in firm value, for instance, decisions taken by managers who do not adequately assess investment decisions can lead to poorly forecasted cash flows and expenses or bad strategies affecting revenues which in turn affects the wealth of the owners. Thus, transparency from managers can indicate whether they are taking the appropriate steps.

Jensen and Murphy (1990) argue that the payment of large incentives to the managers can lead to help align the objectives of the agents to the principals. However, a high level of remuneration, as well as pressure from the market, are key influences which can lead to excessive risk-taking. Erkens et al. (2012) put forth that the pressure from the market to deliver short-term results from investors could be the partial reason for the managers from banks to have taken such risky decisions during the mortgage crisis; despite several factors that contributed to the downward spiral the weak governance from the banking sector amplified the problem. Kirkpatrick (2009) also agrees that failures in corporate governance, as well as regulatory requirements, hindered the safeguard against excessive risk.

The median compensation for CEOs in 2007 was \$8.4 million for S&P500 companies, with such a high level of pay, top managers were pressured to deliver a good performance to justify their pay, and this often boils down to significant risk-taking to provide short-term returns. Fehr and Falk (1999) advise that instead of focusing on tangible rewards and characterizing the managers as opportunistic and deceitful, it is better to develop trust between them and the owners, which can lead to non-pecuniary rewards in the form of social approval.

The Kay report (2012)²¹ which focused on the performance and governance of the UK equity market, also concluded that short-termism was a vital issue which was instigated by *“the decline of trust and misalignment of incentives”*; highlighting that trust and confidence amongst investors had eroded due to the behavior showcased by players in the financial markets. The report mentions that asset managers should put the interest of investors as the priority and financial advisors should make recommendations based on how they would invest themselves.

The subsequent effect after major corporate frauds such as Enron and WorldCom led to the creation of the Sarbanes-Oxley Act of 2002 (SOX) whose aim was to strengthen corporate boards as well as give job protection for whistleblowers in firms (SOXLAW, 2006). The main problem with SOX was the additional costs that the firms would have to

²¹ Department for Business, Innovation & Skills (2012)

incur in the form of additional compliance costs or audit expenditures; furthermore, since real-time disclosures have increased, it will also require more personnel (Carney, 2006). However, when reforms are imposed it leads to better protection for shareholders and can be seen as a preventive measure against the extraction of value by insiders of the firm (Arping and Sautner, 2012).

Because we are concentrating on UK investment trusts, the agency theory is relevant for this study. Gamble and Kelly (2001) and Arora (2010) showed that the shareholder hypothesis is prevalent in the United Kingdom and firms within the country are focused mainly on maximizing the wealth of the shareholders rather than focusing on the other stakeholders. Furthermore, it can be noted that the reports produced throughout the years about Corporate Governance in the UK especially by the FRC have focused mainly on shareholders.

Stewardship theory

The stewardship theory depicts managers as trustworthy stewards of an organization; hence the capital of the owners can be entrusted to them. This theory stems from organizational psychology and sociology (Davis et al., 1997). It is proposed that the managers' success is measured by the level of satisfaction they receive from performing the job which leads to the maximization and protection of the investor's wealth as opposed to self-interest as shown in agency theory whereby monitoring is required. Therefore, conflicts between owners and agents do not exist since the aim is to work towards the goal of the organization which effectively covers their personal goals (Donaldson and Davis, 1990).

Schillemans (2013) adds that this theory sees human nature as collectivistic which refutes the clash of interests proposed by the agency theory. It is also proposed that the stewards are motivated by ego-related values such as personal development and upholding a good

public image. Hence, their performance does not require oversight from the board of directors nor outsiders such as block holders. Bebchuk and Hirst (2019) demonstrate that portfolio managers in index funds such as Vanguard aim at maximizing the long-term value of the funds, which is driven by their roles as stewards.

When the managers feel connected to the firm, the success or failure of that firm becomes personal which then leads to effective stewardship. Fama (1980) finds that the managers also effectively manage their careers since they are not swayed by financial motives (McClelland, 1961). They will tend to consider reputation and achievement to be significant factors that could help to secure future positions in other companies which will be beneficial to them. Consequently, they seek to maximize the performance as this sends a signal in the market about their performance (Daily et al., 2003) which increases the likelihood of securing board positions in the future.

Donaldson and Davis (1990) detect superior performance when the firms have a more substantial proportion of insiders on the board because there is more in-depth knowledge, access to current information, and more commitment to the firm as opposed to outside directors; therefore, they are empowered to maximize the performance of the firm. The authors also propose that the dual role of CEO and chairman leads to better performance since there is a unified decision. Zhang et al. (2018) add that from a stewardship perspective, managers and institutional investors have shared goals which allow for better deployment of resources and also help increase innovation thus enhancing long term performance

It is also recognized that the presence of trust and encouragement for autonomous behavior encourages managers in the firm to perform well as they feel valued and have the authority to participate in the decision-making (Davis et al., 1997). Furthermore, it is rational behavior for managers to divert their interest in the interest of the investors, a manager could be embarking on an investment that would lead to a high return which in turn would translate into a bonus but according to the theory the steward realizes that there is a tradeoff between organizational objectives and personal needs. Since the conflict between the owners and managers is not present, the monitoring cost becomes redundant

or very low. Caldwell and Karri (2005) furthered the discussion by stating that stewards assume a commitment to the welfare and growth of others.

The UK Stewardship Code (2020) is addressed to the parties responsible for the investment of capital of the investors, the asset owners, and asset managers. The provisions state that activities such as asset monitoring and investment choices should not be outsourced. This report highlights that the stewardship theory in the context of investment trusts would apply mostly to the asset managers in the funds rather than the board of directors. Thus, this theory would be suitable if the study focused on the effect of the investment managers on the performance of the investment trusts.

Stakeholder theory

The stakeholder theory focuses on more than one group of interests instead of only investors, linking to ethical, social, and environmental considerations (Pease and Mcmillan, 1993). This is based on the idea that corporations have a broader responsibility beyond capital providers. Edward Freeman brought forward this theory in 1984 and define a stakeholder as any individual or group who can affect or is affected by the achievement of the firm's objectives. The author adds that running a business should lead to a good deal for different stakeholders such as employees, shareholders, and managers since without their support and cooperation, the firm will cease to exist. Whether the firm is successful or at a loss, it has an impact on the broader audience and not only the shareholders (Westrenius and Barnes, 2015).

Although there is an emphasis on profit maximization, this theory accentuates more on moral values and focuses on a long-term relationship with various stakeholders such as suppliers, government, employees, which can help in value creation. This theory has been criticized to suffer from vagueness (Fassin, 2009), whilst Freeman et al. (2010) argued that this could be remedied if there is a development in the meaning of a stakeholder, by

understanding whose interest should the managers tend to. However, these varied stakeholders would have different objectives, an investor will want to earn a high return with low risks whilst employees would want to make a high wage and receive fringe benefits.

Jensen (2001) proposes the enlightened approach which focuses on long-term objectives that helps with long-term value maximization will enable these different objectives to be accommodated. However, Sundaram and Inkpen (2004) argue that the identification of the diverse value of each stakeholder is an unrealistic task for managers, whilst also adding that there is potential expropriation of value between non-shareholder to shareholders, where the latter are the actual capital providers in the firm.

Resource dependence theory

This theory proposes that the achievement of organizational goals can be fulfilled by the intervention of the board of directors, they could provide resources in the form of financial, human, and intangible support for the managers. Similar to Fama (1980), Hillman and Dalziel (2003) focus on the relationship between incentives of the boards and their monitoring role; with the inclusion of the board being the providers of resources; which they coined as board capital. According to Pfeffer and Salancik (1978), the appointment of a director on the board brings out the expectation that the individual will support the organization and aim to aid when possible therefore the directors can use their network for specific favor that will benefit the firm.

Barney and Arian (2001) find that a major principle for this theory is the scarcity of resources, they define resources as assets that institutions require to implement their strategies; and these resources are actively being sought by firms. It can also be added that firms are not self-reliant suggesting their dependence on external environments which can both support and restrict the firms (Garud et al., 2002; Durand and Jourdan 2012).

Wernerfelt (1984) also stated that resources could be any strength or weaknesses of a given firm, the connections and experience are some factors that can determine what contributions can be made from those directors; for instance, holding positions in other boards and the prestige of the directors may lead to value enhancement.

Johnson et al. (1996) add that outside director can help the firm access resources which can be critical for the growth of the firms, this can also build a long-term relationship between the external link and the firm; Thompson and McEwen (1958) add that the inclusion of an outside director who is a banker can help the firm with easier access to the funds at the bank at a more favorable rate when borrowing. Engelberg et al. (2012) have a similar finding, they showed that informal connections with bank personnel can be beneficial for the firms. Fracassi (2017) extends their study for other corporate finance policies, connection through education can influence the decision about capital expenditure.

Hillman and Dalziel (2003) find that board interlock is a tactic allowing firms to access tangible and intangible resources. The board is interlocked when two directors serve together on two boards of different firms. The study by Zona et al. (2018) focuses on interlocking, they found that firms that have resource constraints experience a positive performance when interlocked as there is a better effort in the management of dependencies. However, the findings from Hamdan (2018) showed that interlock directors in Saudi Arabian banks do not serve as a reliant network to help with the low cost of debt.

Theory of choice

In this study we will focus mainly on the agency theory, for several reasons; firstly, when investors inject their capital into their chosen investment trusts, they do so because they expect their wealth to be maximized using the specialized investment skills of the managers. However, the fund managers who require capital from investors to construct a

diversified portfolio, often deviate from their objectives which can impact the wealth of shareholders. Hence, there is a need for corporate governance to keep the managers on track. This study is focusing on the effect of different board characteristics on performance; unlike the other theories, the agency theory focuses on the duty of the directors towards the shareholders.

Secondly, the stewardship theory proposes that there is a natural alignment between managers and investors since it is in the best interest of managers to perform well; their success or failure is dependent on the fate of the firm. However, over the past few years, scandals and crises have shown that not all managers can be trusted as sometimes greed and pride takes over, and they start amassing wealth for themselves.

In investment trusts, the shareholders, managers, and directors are effectively the stakeholders, there are no other parties involved. Therefore, unlike firms where there is a broader group of interest such as the government, employees, or suppliers; in the funds, investors want to earn a high return whilst managers and the board of directors requires their salaries. Therefore, under this circumstance, agency theory is more suited since there are only two parties involved. The stakeholder theory is also flawed when it comes to prioritizing the deployment of resources since it is focused on too many concerned parties; managers then find it difficult to select a group to cater mainly for when resources are scarce.

Lastly, the resource dependence theory, on the other hand, highlights the importance of the resources the board members can bring to the firm which can be based on “whom they know” and also where they work. This theory can potentially be employed in later research, as the previous or current experience of the directors can be used to assess whether that implies better performance; as well as their level of education and their social network which can influence dependencies and certainty of resources. The network of the directors and investment managers can potentially help the fund regarding gearing (acquiring debt at a cheaper rate) or investment opportunities.

Although Keay (2017) find that the lack of trust in the stewards of the company, creates an “us and them” mentality, in reality, investors, have indeed witnessed this separation between the two parties through different scandals and large remuneration being paid even

when there was poor performance; which indicates that this separation already existed. Overall, the agency theory is oriented towards providing protection for the investors, which is needed to maintain trust and confidence and helps with the retention of capital. A report by the OECD indicated that greater prominence is given to agency conflicts when legislators are faced with more than one set of problem; this highlights the importance of investors.

Shleifer and Vishny (1997) state that corporate governance “*deals with how the investors can assure themselves of getting a return on their investment.*” In this milieu, conflicting ideas and goals can arise between the owners and the agents, which leads to agency costs. The core assumption of the agency theory is associated with the potential greed of managers, who may choose to maximize their wealth (Demsetz, 1983). Since information is seen to be distributed asymmetrically, it works in favor of managers as opposed to the owners who do not have the details on the operations and if it is carried out accordingly by the managers.

Managers in the firm are often faced with crises that are beyond their control and cannot prevent these from affecting the performance of the firm such as the global financial crisis or change in corporate tax. Though they need to be ready to counter these rising issues with appropriate measures. On the other hand, when problems arise from the inside, the key players of corporations bear the responsibility to fix the problem, e.g., the Deepwater Horizon oil spill. It was argued by Smith (1776) that agents may not work for the owner’s benefit if these agents are not owners themselves. The case of Goldman Sachs during 2008 showed the apparent conflict when they defrauded investors (Shen, 2016).

The study will employ focus on a range of internal factors such as the board of directors or their compensation to grasp an understanding of whether these lead to a good performance in these funds. It will also detect what factors are causing the funds to trade at a discount/premium. The framework of agency theory will be employed for this investigation as it has limited parameters, the convergence of interest is only between the owners and the agents as opposed to other theories such as the stakeholder theory; where the actions of manager could affect several parties, and therefore, performance measurement becomes complicated.

Micklethwait and Woolridge (2005) focus on the negative societal attitudes towards corporations. They found that investors had a clear distrust and resentment when agents had divergent interests. The agents are often driven to accumulate power within the corporation by accumulating financial capital to grow into large institutions by taking on risky ventures. They also add that corporations have given rise to income inequality as well as fraud and corruption which have become widespread among corporate executives. Nevertheless, the presence of the corporate veil allows managers to hide behind the legal entity and avoid accountability.

Shareholders need to safeguard themselves against possible expropriation of wealth, by having a set of mechanisms inducing the alignment of interest (Hart, 1995). The agency theory proposes certain arrangements that can be made to alleviate the difference between the two parties and enhance performance. Internal mechanisms regarding the structure and composition of the boards, and their ownership and remuneration patterns have been explored in various studies; these will be used in this study but from a fund perspective to derive testable hypotheses regarding performance.

3.2.3 Corporate governance characteristics

The Financial Reporting Council has released several corporate governance reports over the past three decades. Through these reports, it has been apparent that some corporate governance characteristics such as the board of directors and remuneration are thoroughly discussed. Furthermore, the report published on the board effectiveness in 2011 documented the importance of the board of directors and explain that the board can be seen as an important mechanism to curtail the deviation of interest for the managers. In this section, we will focus on the corporate governance variables that will be used in this study.

The presence of a board of directors in a company acts as a pivotal internal mechanism as it is their duty as monitors to help tackle agency problems. By having a collective goal of

working for the best interest of the shareholders, the inclusion of the right balance of knowledge, expertise, and experience can lead to an efficient board translating into long-term success (OECD, 2004). The idea of separation of ownership and control makes divergence somehow inherent; it is in human nature to pursue objectives that will be beneficial to oneself, sometimes forgetting the original goal. Lui and Fong (2010) state that the managers are less prone to act on opportunistic behaviors when the board exercises more power and control on behalf of the investors.

The size of the board as stated by the UK Corporate Governance Code should be sufficient to ensure the requirements for the business are being carried out. Reddy et al. (2010) state that “*There is no one optimal size for a board,*” however, there is a need for the right balance of skills. Therefore, each firm has an optimal size for its board depending on its complexity and characteristics (Raheja, 2005; Adams et al., 2010). Adams and Mehran (2003) and Lehn et al. (2009) find the structure of the organization influences the size of the board; for instance, when there are an acquisition/merger the board size increases since the directors of the acquired firm will be added to the firm.

Non-Executive directors (NEDs)

Non-executive directors usually hold several seats on different boards, which makes them ‘busy’ directors who have a broad networking opportunity and expertise. Since boards play a dual role in monitoring and advising top management, the monitoring duty falls mostly on NEDs, thus having a board with a diverse background of outside directors can bring different perspectives and reduce narrow-mindedness for the approval of proposals (Kosnik, 1990). Daily (1994) find that bankrupt firms, as opposed to survivor firms, had fewer outside directors on their boards, thus showing that fewer outside directors are associated with a higher risk of insolvency.

When the fund managers are underperforming the board must replace them, Ding and Wermers (2009) and Fu and Wedge (2007) find that when there are more independent

directors on the board, there is a higher probability that underperforming directors will be ousted. Khorana and Serveas (2007) also view independent directors in mutual funds as favorable. They find that there is a higher probability of mergers occurring if there is underperformance, especially when the proportion of NEDs is higher due to their lack of tolerance towards poor performance. Ferreira et al. (2018) found that when firms employ new independent directors after a violation of loan covenants, they are more likely to experience a change in policies and take actions that lower both operational risks and payout.

It has also been observed that NEDs have been increasingly motivated to engage in CSR (Khan, 2010), whilst Zahra and Stanton (1988) argue that the NEDs pursue this matter due to their concern about social responsibility. Fernandez-Gago et al. (2018) argue that the latter do so to create a better image and reputation. They also detect that NEDs with political backgrounds and diverse education have a positive relationship with the probability of issuing a CSR report. We can argue that although some NEDs may have an interest in developing a good image that could help secure future directorship, on the other hand, it also works out well in favor of the shareholders.

Holmstrom (1999) proposes the opposite and find that an outside director may not necessarily have the incentive to monitor the executives, as they may want to avoid “making trouble” for the CEO, to be seen as a valuable asset and be retained in their position. Furthermore, McNulty and Pettigrew (1999) argued that it is difficult for outside directors to acquire information from inside directors since the latter may not divulge all information thus hindering effective monitoring. Ghosh and Sirmans (2005) find that on average 40% of the outside directors on the boards were directly recruited by the CEO, which is alarming as it raises the possibility that these directors may not indeed be independent.

Bebchuk and Weisbach (2009) looked at the incentive of independent directors; they found that outside directors that own shares in the firms usually have their agendas and motives. They observe that these directors might favor political and social objectives over maximizing the share price, resulting in the use of corporate resources to increase their utility. Prior experiences and acquaintances could also affect the judgment of the NEDs

if they become sympathetic to managers who are faced with difficulties and challenges. It could lead to a compromise of their independence and the intensity of oversight will be weakened (Wang et al., 2015). Masulis and Zhang (2019) find that at least 20% of NEDs attend fewer meetings and trade the firm's stock less frequently, which could indicate a potential sluggish behavior.

It is encouraged that NEDs should dismiss poorly performing managers (Manso, 2011; Balsmeier et al., 2017), however, this could also lead to a diminished willingness to explore new areas. They may fear that a potential failure in the short term will impact their position, therefore they may fail to properly value the investments in innovation. John Bogle (SEC, 2002) points out that NEDs might not jeopardize their well-paid salaries by disagreeing with the fund managers. Thus, it is proposed that funds that have a large proportion of NEDs might not necessarily produce better decisions which in turn will translate into better performance.

Both Lei and Deng (2011) and Reguera-Alvarado and Bravo (2017) observe the effect of non-executive on firm performance in Hong Kong and the US, respectively. They use the average number of non-executive directors on the board. Goh and Gupta (2016) study the remuneration of non-executive directors in FTSE All share companies, they use the independence of the director as a dummy variable. If the director is stated as a non-executive director in the annual report, it is given 1 otherwise 0. Our sample shows that 92% of the investment trusts had a board of directors which was solely comprised of non-executive directors, therefore we use this variable as a proportion of the board size.

Studies from Dalton and Dalton (2005) and Farag and Mallin (2017) bring forth the argument that when the complexity of business increases the need for a larger board also increases due to higher demand for diversity in skills and experience. Despite the monitoring costs incurred by the owners, the presence of the board is crucial in keeping managers in line with the corporation's set goals. In a firm, the board is bestowed with duties such as advising the management however in an investment trust the board's main task is monitoring the investment managers. Due to this critical role, the board size should be considered. However, since the board is fully comprised of NEDs for most of the

investment trusts, we focus on only the NEDs rather than both variables due to their high correlation of 0.8231.

The UK Corporate Governance Code (2018) recommended that at least half of a board of FTSE 350 companies should comprise of NEDs excluding the chairman and the nominee committee should be mostly composed of NEDs. It is suggested that the presence of these directors will reduce the power concentration in the hands of executive directors who may have conflicting interests. Therefore, in alignment with this notion, it can be argued that a higher proportion of NEDs on the board will further reduce the power concentration thus can help improve performance. Hendry (2005) discusses the role of directors within the agency theory, it is argued that the shareholders have a legal mechanism to deal with self-seeking agents by electing the members of the board. The NEDs present in investment trusts can be classed as monitors and thus they can curtail agency problems hence reducing agency costs.

Hypothesis 1: A higher proportion of NEDs on the board will positively impact performance

Female directors

There has been an active global movement for the incorporation of more women on corporate boards, the Higgs report (2003) argues that having a diverse board could increase effectiveness as there is a bigger pool of talent present on the board. Although there remains an obvious imbalance between the gender, this is likely to change gradually. Countries such as Sweden and Norway are required to have a minimum of 25% and 40% of women on the board, respectively. Between 2012-2019, the female directorship in the UK within FTSE100 companies has increased by 107%, an increase of 117% has been recorded for female NEDs on the board (Statista, 2020).

The presence of women has proven to have a positive impact on both short-term and long-term performance, measured by Tobin's Q and three years of stock price growth respectively (Welbourne, 1999). Carter et al. (2003) also find a positive relationship between the value of the firm and greater representation; they have linked the better performance with greater diversity on the boards showcasing a better understanding of the market in which their company competes. Also, the board tends to be more creative when it is filled with members from different backgrounds and with different experiences.

Huse and Sollberg (2006) find that women on the board improve the quality of monitoring since they are better prepared before the meetings and also ask critical questions. Further arguing that the lack of preparations from the men leads to the board being less dependent. Hence, women have more chances to influence decision-making. Smith et al. (2006) and Adams and Ferreira (2009) find that a more significant proportion of women in top management positively affect corporate governance. There is an increase in board meeting attendance and also when there are a higher fraction of women on the boards it caused the attendance behavior of male directors to improve. Furthermore, by having more women present, the boards were more likely to hold the CEOs accountable for the poor performance of stock prices.

Marinova et al. (2016) observe that in Europe only 14% of the executive board comprises women. They focused on the performance of firms in the Netherlands and Denmark arguing that these two countries have similar corporate governance structures. Their findings indicate that boards with at least one female director perform better than boards that are fully composed of male directors. Liu et al. (2014) use a sample of Chinese listed firms from 1999 to 2011; they find that boards with three or more women have a stronger impact on firm performance compared to those with two or fewer women.

It is found that many female board members who have advanced degrees are allowed to join the board at a faster pace (Hillman et al., 2002) however with the presence of the 'old boy network' it becomes difficult to reach the top. After the passing of the Davies Review, many chairmen hired more women on the board to comply with the review. After their appointments, it was found that there were significant benefits especially in the quality of discussions during meetings as well as considering issues from different perspectives.

Oakley (2000) takes the approach of linguistics, arguing that women tend to take the humble approach whilst men exercise power that can also translate into more self-confidence. This can prompt for being more noticeable and getting promotions.

The study based on female representation has been carried out for female investment fund managers, Atkinson et al. (2003) focus on investment in fixed income mutual funds and found that there are no significant differences between female and male fund managers. However, gender did have an impact on the amount of assets flowing in the funds, whereby female fund managers experienced lower fund flow as opposed to their male counterparts due to gender-based stereotypes that women are not good financial decision-makers. The study of female hedge fund managers also shows that there are no differences in performance when they take similar risks. However, there is a higher rate of failure when the fund has at least one female as a manager due to the difficulty of raising capital (Aggarwal and Boyson, 2016).

Babalos et al. (2015) examine the performance of equity funds, but focus on European mutual funds and compare the difference of performance between male and female managers; they detected that 37% of female managers had stock-picking abilities while the portion of men was lower (33%). On the other hand, female venture capitalists have a significant underperformance than male venture capitalists, this can be attributed to gender bias on behalf of investors who prefer to allow male investors to manage their funds; (Gompers et al., 2014); they further found that most venture capitalist firms had no female managers or directors on their board of directors which can also lead to a lack of mentoring for future managers.

Hambrick and Mason (1984) proposed that the experience of decision-makers, such as directors can help dictate the strategy they decide to pursue. Therefore, female directors with past directorship roles would perform better in their monitoring roles when they have previous experiences in this role. Furthermore, the decision-making process can also be molded by the presence of women directors on different committees such as the remuneration and audit committee (Carter et al., 2010) where they can have decided on an important matter related to the fund managers.

Using a sample of 200 pension funds in the Netherlands, Shi et al. (2016) find that the larger the board has the higher probability of having one or more women on the board. According to the pension funds code in the Netherlands (Pensioen Federatie, 2018), “*At least one man and one woman will hold a seat on the board of trustees.*” the code recognizes that the diversity of gender on the board brings a multi-dimensional perspective whilst decisions are being made. Levi et al. (2014) use acquisition bids by S&P500 companies to focus on the impact of women on acquisition bids, they found that with every additional woman on the board there was an association of 7.6% fewer proposals that were acquired.

Masulis et al. (2011) find that foreign directors have the potential to add their international expertise to the boards which would enhance monitoring. However, they can also be less effective in doing so if they cannot control management well due to differences between countries and cultures. It has also been observed that the increase of women working in the financial market and the presence of more females on the board could place the board as a whole in a better position to tackle female managers making investment decisions²². Green and Homroy (2018) use a large sample of publicly-traded European firms, they found that more than half of the board had at least one female director on the board.

On the other hand, Carter et al. (2003) argue that although board diversity might lead to better activism, there is no guarantee that this would be translated into effective monitoring since their activism could be diversified therefore there will not be coherent decisions by the board members. Smith et al (2006) countered this argument by debating whether the performance could be boosted from the improved public image of the firm instead of actively monitoring managers. Furthermore, Ahern and Dittmar (2012), focused on the imposition of 40% women on board for Norwegian firms and found that they had lower firm value; they attributed this result with the possibility of having hired less experienced women.

Adams and Ferreira (2009) acknowledge that there is a possibility of endogeneity arising, where larger firms that are performing better could be inclined to add more female

²² Department for Business, Energy & Industrial Strategy (2011)

directors to their boards. They also found that diversity has a positive impact on performance in firms that have weak governance (measured by their abilities to resist takeovers), but in firms where there is good governance enforcing diversity does not necessarily increase value for shareholders. Jurkus et al. (2011) found that agency cost is lower when there are more women, although the effect disappears when addressing endogeneity. The studies so far have focused on females on the boards of firms or as investment managers, but there has been no focus on the role of female directors on the board of investment trusts in the UK; therefore, this study will aim to bridge the gap between gender diversification and performance of investment trusts. Furthermore, the inclusion of this variable in this study is based on the basis that their presence can help performance; women are viewed as having a soft culture where they are relationship-oriented and tend to think with a long-term horizon and this is likely to benefit the fund performance. The lack of evidence in the literature to support this argument allows this study to fill the gap on whether women can indeed affect performance, especially in investment trusts.

The European Commission has reached out to listed companies for an increase of 40% by 2020, which highlights an increasing pressure to diversify the gender representation of directors on the board. Terjesen et al. (2015) argue that board diversity can help in challenging fund managers. They also consider whether the diluted incentives for managers can work against the shareholders whereby the managers may make less effort to maximize shareholder value. This study will explore whether there is a tradeoff between managers' decreased effort and decreased cost related to agency conflicts.

Gulamhussen and Santa (2015) assess the role of female board directors in large banks, they observe that the latter had a positive influence on performance (ROA and ROE). They use the percentage of female directors relative to the board size, they also employ dummy variables with regards to the presence of women on the audit committee and supervisory board. Sila et al. (2016) also use the proportion of female directors, to capture their effect on firm risk. In this study, we have chosen to utilize the number of female directors like Arun et al. (2016).

The inclusion of women in the workplace remains unfinished business, the Financial Conduct Authority (2018) aims to reach a goal of 45% of women in a senior leadership role by 2020. The movement of closing the gap between men and women highlights the acknowledgment that a balanced and diverse workforce helps increase productivity which is why this study must include women in the assessment of fund performance. Since the relation between women and investment trusts' return has not yet been explored as per the literature we have come across; this study will aim to contribute to the research on women on the board. Lastly, we will adjust the data to deal with potential endogeneity problems, which will be discussed in the subsequent chapters.

The Women on Boards report (2020) highlighted that the UK was amongst the top 10 countries in the world where companies have 3 or more women on the boards. It was observed that amongst the UK companies listed on the MSCI ACWI index, 84% had 3 or more women on their board. It has also been documented that the financial industry has a high proportion of female directors, with directorship increasing by 21.6% between 2019 and 2020. The UK Corporate Governance Code (2018) promotes gender diversity on the board by recommending that the board should have at least 33% of their board members being female directors. The report advises that by the end of 2020, there should be 33% of female directors on the board of FTSE350 companies.

Since most of the investment trusts in this sample trade on the FTSE350, it can be argued that the inclusion of more female directors is an important agenda for UK funds and thus we propose that the presence of more women on the board will help the funds' performance. The Hampel report (1998) proposes that board diversity tends to prevent one group of agents to dominate the decision-making process thus minimizing the agency cost. We can argue that a board with greater gender diversification will help create a more balanced board that can ensure there is an alignment with the principal and agent's interests.

Hypothesis 2: The presence of a greater number of female directors on the board enhances performance

Age of directors

The age of the directors can be important in determining their effectiveness in managing their firms, the older they become, the more experience they have acquired which they can apply to enhance the performance of the company. However, most of the literature carried out in different fields such as sociology and psychology, documents a negative relationship between performance and age. Salthouse (2012) argues that an individual's cognitive abilities (can do) and motivation (will do) are the main age-related determinants of job performance. It is seen that with age the cognitive ability of an individual decrease thus older directors will perform worse and focus less on maximizing shareholders' wealth.

When individuals get older, they have a preference to lead a quieter life and also experience a shift in their goals in life, Finklestein and Hambrick (1989) document an inverted u-shaped relationship between age and cash compensation of the CEO. Until the CEO reaches the age of 59 there is an increase in compensation but then starts declining after that age. This is associated with a decline in the need for cash and also fewer child-rearing expenses. Thus at this point in their lives, they are seeking security financially and career-wise. Taylor (1975) found managerial age has been negatively associated with the ability to integrate information in decision making; these managers tend to seek more details thus take longer to make decisions.

Waelchi and Zeller (2013) also document a strong negative relation between the chairman's age and various measures of performance. Using a large sample of more than 1500 chairmen of unlisted corporations in Switzerland, they find that when age increased by 9.6 years, it resulted in a drop in ROA by 0.8%. Following Salthouse's discovery on deteriorating cognitive effect for older chairmen, they also found that as the chairman gets older they become slower at their tasks and this causes the firm to have significantly lower profitability. The degree of risk-taking decreases as managers age, younger managers

have a greater tendency to make risky decisions as a signal to the market that they possess superior abilities, they are still trying to pave their way in the industry; whereas older directors do not want to risk their financial security, therefore, they are associated with low leverage and high cash holdings; the latter also tend to be more conservative and do not attempt to challenge the system (Berger et al., 2014).

Inglehart (2008) finds that the values of different generations change following the prevailing conditions during their formative years, which lead to divergence in values between younger and older individuals. This value diversity on board can help or hinder performance. Jehn et al., (1999) find that the disagreements and conflicts between older and younger directors harm the profitability and risk of banks. However, when the complexity of business increases, a different approach and perspectives are essential in identifying the best course of action; if all individuals are from the same age group they tend to have the same views, and this is not helpful.

Ernst & Young (2015) report that in recent years there has been a shift of director's position from executive to non-executive which has led to a higher presence of younger NEDs on the board and these individuals are more tech-savvy than their predecessors which facilitate effective communication on the board. Unlike older managers, younger managers have more openness to risk-taking therefore often embark on innovative projects that are associated with corporate growth, they also possess more mental stamina, so they can grasp new ideas (Child, 1974; Hart and Mellons, 1970); Hambrick and Mason (1984) find that younger managers are less bound by the status quo and are sometimes more keen on the monitoring process.

According to the resource dependence theory, to take advantage of the benefits that board members bring to the firm they have to be carefully selected, and age diversity is a factor that may have an impact on social and human capital. The diverse age groups of directors are linked to their differentiating social networks which can be beneficial when the firm is trying to raise money or making an investment. The studies on the director's age are limited throughout the literature, similar to female directors; the age of directors has been analyzed mostly from the perspectives of firms; therefore, studies in funds remain quite barren and will be explored in this thesis.

Talavera et al. (2018) focus on age diversity and bank performance in China, they measure age diversity as the ratio of the standard deviation of board age to mean board age. Berger et al. (2014) concentrate on the effect of age of the directors on bank risk-taking, they utilize the average age of the board of directors. Chauhan and Dey (2017) also include the average age of directors in their study focusing on the effect of female directors on Indian firms. This study focuses on finding whether age affects performance rather than understanding whether the age range is diverse enough on the board therefore we also use the average age in this study.

Although the UK Corporate Governance Code (2018) does not specifically mention any recommendations about the age of the directors, the Corporate Governance Reform paper issued by the UK government encouraged companies for greater transparency with regards to the diversity of the board. The board diversity includes the age diversity²³ of the directors, they propose that greater diversity of the board can lead to more effective boards. In alignment with these reports, we propose that a board with older directors could be indicative that the board is not refreshed with new directors and thus would hinder diversity which would impact performance negatively. Fama and Jensen (1983) have been observed as a proponent of agency theory and they detected that a director with specific expertise is important for monitoring. We can argue that with age the directors will be able to accumulate their expertise which can have an impact on the performance of the funds.

Hypothesis 3: The performance of the investment trusts is negatively impacted by the presence of older directors

Tenure of directors

²³ The annual report of 2017 for Tate & Lyle mention age, gender and ethnicity as part of board diversity.

When a CEO is performing well and increasing the value of the firm there will be a clear indication that their service should be retained on the other hand poorly performing CEOs should be replaced. Nonetheless, there are conflicting views on the long tenures of directors on the same board due to the potential impact it may have on governance. Brookman and Thistle (2009) find that a fully functional governance structure is needed to ensure the right people hold their position. Alderfer (1986) and Vafeas (2003) propose that directors with long experience at the same company will be able to provide valuable knowledge acquired during their period of service which ultimately contributes to more significant commitment in governing the firm.

Kesner (1988) finds that during the first 3-5 years in a firm, there is a learning phase where the directors acquire sufficient knowledge and understanding of the operations, which can be used later. They detected a correlation between the tenure of the board and the resistance to greenmail²⁴. Huang and Hilary (2018) examine the tenure of directors by focusing on the tradeoff of their knowledge accumulation which can positively affect their monitoring role and the potential entrenchment of their independence. They find that when the average tenure of the outside directors reached 10 years, the firm would have maximized its performance, an increase of 5 years to 7 years leads to an increase of 4.3% in ROA.

During these early years, there is a deep acquisition of job-specific knowledge and familiarity with some aspects of the firm such as negotiating power which can contribute to strategic growth. However, Shen (2003) showed that some CEOs often lose their jobs in the first few years of being in their position. The board of directors may be quick to dismiss directors when they start fearing entrenchment. When tenure increases, at the start Allgood and Farrell (2003) propose that the risk of dismissal is high because if the firm observes poor performance the CEO will not be allowed to continue. However, the risk starts decreasing at later periods because the top CEO will be well-matched with the firm.

²⁴ Greenmail refers to the acquisition of a substantial amount of shares of a target company which leads to the target company being pressured to purchase those shares back from the buyer at a premium (Nasdaq, 2020)

The longer a CEO work for a company, the more powerful he will become as he would have gained considerable influence on the board members and would have partaken in the selection of the members as well. If the CEO becomes entrenched in his pursuit to boost performance by embarking on risky investment decisions, shareholders will be faced with higher volatility (McKnight and Weir, 2009). The directors with a long tenure may showcase less diligence and may not question the actions taken due to the trust they have for the CEO. Therefore, lower tenure may restrict the pursuance of personal interest since there will be a lack of power during the early stages but also fear of job loss.

Beasley (1996) argues that long tenure can enhance the monitoring process as they can acquire more knowledge if the board is less susceptible to the influences of the managers. Nielsen and Sisson (1996) found a positive relationship between the tenure of outside directors and the performance of commercial banks as these directors are less susceptible to group pressure and express their opinion which improves the monitoring quality. It is suggested that a board with various director tenure may benefit from the knowledge of the senior directors and the independence of younger directors.

Wu et al. (2016) investigated the relationship between NAV performance in 679 closed-end funds and tenure, they found that managers with long tenure have a stronger predictive power for the NAV performance as compared to short-tenured managers. It is suggested that managers with longer tenure provide investors with a long track record of their performance. Therefore, investors can make better forecasts. For this study, we consider the average tenure of the board. This variable is also an important factor as our sample indicates that there are directors who have a tenure of 26 years (e.g., Hugh Young, Aberdeen New Thai IT: 1991-2017); whilst other directors from funds such as Alliance Trust and Majedie Investments have only 1-year tenure; therefore, it will be possible to study if tenure impact performance.

Following previous studies by Barroso et al. (2011), Dalziel et al. (2011), and Reguera-Alvarado and Bravo (2017), this study will also utilize the average years each independent director spend on the board to obtain the average tenure. Pearce and Patel (2018) argue that the board of directors can play a major role in overinvestment and underinvestment which can affect firm performance. They utilize the variable board stability which is

measured as the average tenure of directors on the board. We will therefore also use the average tenure of the board members.

The case of Jack Welch with a tenure of 20 years at General Motors is an indication that long tenure can sometimes be beneficial for a firm, during his time at GE there was a 2200% increase in the stock price as opposed to the Dow's 70 % rise (Cline and Yore, 2016). Golec (1996) also pointed out that with long-tenured fund managers, investors can expect better risk-adjusted performance. Some studies have focused on the tenure of the investment managers whilst the literature on the tenure of the board of directors in investment trusts remains barren. Therefore, we will explore how the tenure of fund managers and their role in overseeing the activities of the managers affect fund performance.

It can be argued that if the investment trusts are already trading at a discount may have difficulties in attracting new NEDs on the board of directors especially when the fund is increasing in size. This can elongate the tenure of existing board members; they end up staying for a longer period. These directors may take advantage of the situation and reduce their monitoring duties, knowing that their replacement will be remote. Following Huang and Hilary (2018), it can be argued that if the funds have a dynamic board every time the fund reaches its maximum performance it may help with the issue of entrenchment. However, this method may not be feasible, it may not be practical to simply terminate directors to ensure there is an optimal dynamic.

In conjunction with the UK Corporate Governance Code (2018), the FRC issued the Guidance on Board Effectiveness. Provision 103 provides guidelines for the tenure of the chair and NEDs, it stipulates that the board of directors must justify the NED tenure beyond nine years. They discussed that NEDs whose tenure is longer than 9 years may showcase biased judgment and not criticize the boards' decisions. Based on the code, we propose that longer tenure of the directors can impact their monitoring duties negatively which in turn will affect the performance of the funds. Fernández-Temprano and Tejerina-Gaite (2020) discuss that the focus on board diversity is studied within the agency theory whereby diversity could encourage an activist board. We propose that tenure can be

considered as a factor that contributes to diversity, therefore this variable alongside gender and age will be utilized.

Hypothesis 4: The tenure of directors is negatively related to the performance of investment trust

Directors' ownership

The delegation of control to managers often raises a fear amongst investors that these agents do not always act in their best interest. Smith (1776) proposed that a director in a company would exercise and restrict specific actions if he was a part-owner, they would not exercise the same level of care if there is no ownership tied to the company. When the agents attempt to embark on their wealth maximization, by making use of private assets of the firm and extracting private benefits; it can contribute to the worsening of firm performance. Jensen and Meckling (1976) proposed that a supervisory board could be set up to oversee the manager's actions; however, this would increase monitoring costs.

Instead, they proposed that a more cost-friendly alternative would be the alignment of interest through the compensation with equity. The managers will be more encouraged to invest in value-enhancing initiatives due to their wealth being tied to the firm; they will attempt their best to maximize the value of the firm (Jensen and Meckling, 1976). Lundstrum (2009) observed that when the ownership is higher, there is a decline in leverage usage to avoid risks of bankruptcy if a debt cannot be repaid on time. It can be argued that they are incentivized to act in the best interest of the owners as they are part owners too. Sun et al. (2015) also found that managerial ownership for UK firms that are listed on the FTSE All-Share index, was negatively associated with high debt ratios, and with lower debt, there was a positive association.

Florackis and Ozkan (2009) propose that when managerial ownership is low, there should be a higher level of debt to keep the managers on their guard. The misuse or improper investment of cash can lead to poor performance which will, in turn, affect the fund required to pay for interest liabilities. Florackis et al. (2020) argue that the increased ownership of managers can lead to overexposure to firm-specific risk which in turn can affect their portfolio. They are led to resort to risk substitution by passing over an innovative project. Their finding shows that there is a weak relationship between ownership and firm value.

It has also been argued that a high level of managerial ownership can lead to the acquisition of power, the agents will still be able to extract private benefits, therefore there will still be entrenchment (Ruan et al., 2009). However, although the directors may have a large portion of ownership, they will not be able to exercise power due to the presence of block holders. When observing US-listed firms Morck et al. (1988) discover that when ownership increases from 0% to 5% there is an increase in the performance of the firms which occurred quite rapidly due to the convergence effect of interest. The value of the firm starts decreasing when ownership is between 5% and 25% which they linked to some possible form of entrenchment.

When analyzing Spanish firms, Miguel et al. (2004) also found that when managerial ownership is between 35%-70%, the likelihood of entrenchment occurring increases. This shows that although the high concentration of ownership can better the performance when there is a sizeable amount of stake it can lead to entrenchment. Saona et al. (2020) have similar findings with regards to Spanish firms, they observe that earnings management has a negative relationship with the increased voting rights of controlling shareholders. There is a potential entrenchment effect where the agents use their power to manipulate earnings.

From the perspective of fund management, Cremers and Petajisto (2009) focus on mutual funds and find that the ownership of the directors on the board is positively related to performance and negatively related to expenses. This could mean that as ownership increases the directors may have more influence in keeping the fund expense low which then leads to better performance as less return is eaten away by expenses. Chen et al.

(2008) also find that when there is a higher proportion of board members with substantial ownership in US mutual funds, this lowers the expense ratios.

Bhagat and Bolton (2013) find a positive relationship between β and performance (stock return and Tobin's Q) both pre and post the introduction of the Sarbanes-Oxley Act of 2002. They utilize the natural log of the dollar value of the stock owned by the median director. Ju and Zhao (2014) found that the ownership of directors is larger when they are independent directors, they argue that the discount in closed-end funds may be reduced due to diligence from the independent directors. They also use the total dollar ownership owned by the independent directors, with the inclusion of a dummy variable that indicates when the director's ownership is larger than the mean ownership. In this study, we sum all the shares owned by the whole board of directors and find the proportion relative to the shares outstanding.

Managerial ownership is used in this study because their ties to the funds lead to their actions being in favor of the shareholders, as a monitoring mechanism the directors become part owners too and aim to maximize the shareholders' wealth. Hence, it is hypothesized that greater ownership from managers will translate into better performance because their interest is also dependent on how the funds perform. Ibert (2018) reports that when there is a 1% increase in managerial ownership, it is associated with a 2.15% larger future alpha, which translates to a potential higher return for the shareholders.

According to the FRC's UK Stewardship Code, the director's fee is the principal remuneration for the NEDs on the board; they are not remunerated with other benefits; instead, some directors own interests in investment trusts. Although the UK Corporate Governance Code does not address any aspect of the directors' ownership, it can be argued that the director's interest is tied to the investment trust through ownership. Since they are shareholders themselves, they are inclined to act in the best interests of the shareholders. Gayle et al. (2018) commented that the agency theory contributes to the idea of directors receiving stocks and bonuses instead of only their salaries. Jensen and Meckling (1976) proposed that managerial ownership can be utilized as a remedy against agency problems, therefore we will utilize director's ownership as a mechanism to align the interest of the agent and principal.

Hypothesis 5: The director's ownership is positively related to the performance of investment trust

Substantial ownership

Institutional ownership is defined as the equity owned by institutional holders who own at least 3% of the outstanding shares. Institutional investors such as mutual funds or pension funds have a more considerable amount of capital to invest and have a better knowledge of where they would like to invest depending on the risk appetite of their investors. It is reported that most of the stock traded on stock exchanges belongs to institutional investors (Aguilar, 2013). In the last 40 years (1963-2013) there has been an increase in institutional ownership, among this, there has been an increase of 4.7% of ownership in financial institutions which includes investment trusts.

Institutional investors can either be passive or active in their monitoring process over the board, Berle (1932) and Shleifer and Vishny (1986) showed that institutional investors could help diminish agency problems as they own a more significant amount of money tied to the performance, hence they have a higher interest in the company's performance. With a higher voting right power, they can vote against a decision that is hindering the good performance of firms such as the reelection of directors with poor performance by threatening them with takeovers or a proxy fight. Directors must tread with caution in the presence of institutional investors as the latter can sell their shareholdings which will negatively affect the company's share price.

Useem (1996) gave a detailed explanation of the rise of investor capitalism in the USA, showing that the large concentration and greater power from institutional investors have enabled them to challenge management directly on issues of concern. It has been shown that on the acquisition of a large number of shares by an investor the company's performance improved (Bethel e al., 1998). Furthermore, institutional investors can boost

long-term performance as they pay less attention to short-term performance, Jarrell et al., (1985) has shown that institutional investors will not seek for a firm to cut down its research and development expenditures to boost short-term performance. They found that there was a positive relationship between ownership and R&D investment for listed firms.

Bhojraj and Sengupta (2003) find that the costs of debt are lowered when there is a concentration of institutional ownership through strong external monitoring and also since it is more accessible for them to access finance it helps in reducing the costs of debt too. Shahab et al. (2020) also observe a positive effect of increased institutional ownership. They employ 13,421 observations for Chinese listed firms to find that there is a mitigation in the likelihood of a stock price crash. They also argue that these investors would strive to safeguard their considerable interests, by not only acting as effective monitors but also sharing information to avoid plunges in the share price.

Brailsford et al. (2002) and Florackis and Ozkan (2009) found a positive and statistically significant relationship between institutional ownership and firm debt levels; this suggests that higher ownership is likely to hold more debt in their capital structure. Mathew et al. (2016) found that there was an increase in asset return risk and total risk where institutional investors had substantial ownership. This confirms findings from Callen and Fang (2013) and Manconi et al. (2013) who argue that institutional investors often sell their stocks to avoid the costs of monitoring. This short-termism in investing can encourage risk-taking behavior from the management; hence, the ownership of institutional investors is positively related to firm risk.

Barclay et al. (1993) showed that friendly block holders in CEFs derive pecuniary and non-pecuniary benefits such as receiving payment for research or by naming the fund by the block holder's name to advance their pride and prestige. It was found that the presence of block holders had a higher discount of 14% on average as opposed to 4% when there are no block holders. It can be argued that the divergence between the smaller shareholders and owners of substantial shares leads to discounts. Loescher (1984) argued that institutional investors are short-term investors and that their interests may not necessarily be aligned with those of other investors.

In the Chinese context, Huang and Zhu (2014) found that institutional investors under the QFIIs program had more significant influence than Chinese mutual funds; the locals are more prone to be influenced by local politics which may hinder their monitoring roles. McCahery et al. (2016) surveyed 143 large institutional investors which included 48 asset managers and 21 mutual funds; they found that in the past five years 63% of institutional investors had engaged in direct discussions with management. From this survey, they have seen that many institutions choose to sell their shares when they become dissatisfied with the corporate governance of an institution but also when performance is not satisfactory.

Huang (2015) uses a sample of 182 CEFs, more of the funds were US equity funds (102), and the remaining were international equity funds. The author documents that CEFs trading at a wide discount was more demanded by institutional investors than funds trading at a premium, this is due to potential arbitrage profit that can be made. This could back up the argument made by Brickley and Schallheim (1985), who proposed that discount can be reduced by opening the closed-end fund. However, block holders similar to entrenched managers oppose this idea, by using their substantial voting rights. The fund opening would be an incentive to all shareholders since the level of discount will be reduced.

Darko et al. (2016) focus on the effect of institutional ownership on the performance of firms listed on the Ghana Stock Exchange. They utilize the ratio between the 20 largest shareholders and the total shares outstanding, to measure ownership. Jory et al. (2017) calculate the institutional ownership by using data on a five-year rolling basis to eliminate short-term shocks. This method cannot be employed in this study since some investment trusts started trading in the year 2000. Kao et al. (2019) measure block holder's ownership by taking ownership that is 5% or above. The investment trusts in the sample detect substantial ownership as 3% or above, therefore we firstly sum all the substantial ownership presented in the annual report and find the proportion in relation to all the shares outstanding. The sample in this study shows that the level of director ownership is quite low which could potentially indicate that the directors would be weak monitors as they have less interest at stake. Therefore, increased ownership for institutional investors would be beneficial for the investment trusts and also the investors. We

hypothesize that the higher the ownership the better the agency relationship will be thus a lower agency cost would follow.

The OECD released a report on the role of institutional investors²⁵ where it was mentioned that although institutional investors have the legal power to make certain decisions, they often rely on the UK Stewardship Code. The code mention that institutional investors can influence decision-making to enhance the use of capital, and these large investors have a duty towards their investors. Furthermore, Principle II.G from the OECD report discusses the importance of cooperation between institutional investors. Therefore, it can be argued that an increase of institutional investors in investment trusts would be beneficial for the interest of all the investors. Lozano et al. (2016) argue that institutional investors can reduce the agency problem due to their active role as monitors, thus we propose that the presence of these large investors will positively impact performance as they have enough at stake to take action against the managers pursuing private benefits.

Hypothesis 6: Substantial ownership is positively related to the performance of investment trust

Remuneration

The compensation of directors has always received attention especially when observing performance; shareholders are concerned about whether there is value creation from their investment. The board is seen as the agents of a security holder; they have the duty to oversight whether the decision of the CEO helps in the maximization of shareholder value. Remuneration can be designed in a way to align the incentives of CEOs with those of the shareholders. It is found that in firms where governance structures are less efficient, there

²⁵ The role of institutional investors in promoting good corporate governance (2011)

is a greater amount of compensation being paid out; thus, they have greater agency problems (Core et al., 1999).

Feng et al. (2010) record higher performance in funds such as REITs when there is a higher equity-based compensation set in place, 96 REITs out of 136 paid their directors either in stocks or options or both; this highlighted that this form of payment is widely adopted in the REIT industry. It was also found that firms without the CEO's involvement in the selection of directors pay, had a higher proportion of equity compensation. Furthermore, they found that the mean difference of director compensation between large and small REITs is significant, smaller firms pay a significantly higher percentage of total payment in cash.

When examining the performance and compensation of directors, Buck et al. (2003) used a sample of 1602 directors (executive officers and other top executives) in 287 UK companies between 1997-1998; it was observed that the performance of shareholder return was positively correlated with compensation. They carried out a similar study using 601 Chinese listed firms between 2000-2003, using four measures of performance including ROA and pretax profit; and found a similar relationship. This highlights that compensation is an essential mechanism that can motivate directors to enhance firm performance, thus reducing agency conflicts.

Research carried out by MSCI on 429 large-cap US companies showed that CEOs that were awarded higher equity incentives have below-median returns. When observing the pay of these CEOs, the most significant element was the long-term incentive pay. But when remuneration is fixed, it may lead to directors being reluctant to embark on risky investment projects, as they are aware that they will not receive additional personal incentives from the profits of risky investments (Saunders and Cornett, 2006). The influences from large shareholders and regulators have contributed towards the focus of standardized pay for the board of directors. However, by authorizing similar incentives for CEOs who have less than 2 years tenure or those with more than 10 years tenure; will lead to individuals being discouraged to stay with the company for an extended period thus not worrying about long-term performance.

From a fund perspective, Berk and Stanton (2007) raise the issue of the high level of remuneration being paid to portfolio managers and explore the implication of managerial abilities in CEFs. They propose that there is a trade-off between the skills of managers where they add value to the fund and the fees they charge; the prevailing discount or premium will be dependent on the higher factor. The discount in the CEFs are dependent on the changing views of investors for managers, however Wermers et al. (2008) add that over 18 years, only 260 managerial replacements were observed amongst 446 CEFs, showcasing the possibility that entrenched managers are not fired, and this can be associated with their close relationship.

It can be argued that as the firms' activities become more complex, the firm requires management with more knowledge and better skills; in that case, they must rightfully earn a higher remuneration for the duties discharged. Kryzanowski and Mohebshahedin (2016) found that compensation is higher for larger funds and when there was higher ownership; these were consistent with studies from Linn and Park (2005) and Brick et al. (2006). Furthermore, they find that independent directors who hold directorship on more than one fund from the same family are paid less from each fund. It was concluded that those directors might be satisfied with less compensation as they have the chance to increase their total compensation by being on the board of more funds from the same family.

Khorana et al. (2002) observe that between the periods of 1988-1998, CEFs trading at a premium was offering additional shares for their investors to purchase; making rights offerings. The premium, however, did not last; it turned into a discount; the discount is more significant when the compensation of the investment advisor increases. Schymik (2018) found that the compensation of S&P500 executives increased colossally by 350% between 1990-2006, arguing that the reasoning behind this enlarged payment was due to the rise of globalization and the search for managerial talent.

Lewellan and Huntsman (1970) find that a sufficient proxy for total remuneration is the salary paid to the directors as well as any bonuses that they receive; therefore, this study will also use salary and bonuses for compensation for the board of directors. Since the board is composed mainly of NEDs, it can be argued that the remuneration of the board can be kept low as these directors have multiple directorships and sometimes they do not

have in-depth specific knowledge of the operations. Therefore, their compensation does not need to be too high since they most likely would not resign from the board.

Goh and Gupta (2016) focus on the remuneration of non-executive directors from firms listed on the FTSE All-Share index, they find that the directors' age and tenure are positively related to remuneration. They use the logged value of the total pay, which is the average pay of all non-executive directors excluding the chairman. The study carried out by Aslam et al. (2019) supports the agency theory whereby directors are remunerated for their prior level of market-based performance. The remuneration of the directors includes the salary and bonus, in this study there was no clear indication of bonuses and for some investment trusts only the compensation was mentioned. Therefore, for uniformity, we utilize the logged salary of the board of directors.

The reform in the UK law regarding remuneration for directors endorsed shareholders to have a "say on pay"²⁶, as the legislation made it compulsory for the owners of the firms to vote on the remuneration of the agents. This amendment can be viewed as a will for enhancement of corporate governance, and the UK was seen to be a frontrunner in tackling this matter by enforcing the law. Goranova and Ryan (2014) propose that shareholders will be allowed to voice out the disapproval of proposed remuneration by having the ability to vote against it. Therefore, it will be interesting to see whether the law could impact remuneration and consequently performance.

The OECD Corporate Governance Factbook focuses on the board practices across 47 jurisdictions including the UK. They stated that the director's remuneration is found to be the main component of compensation. The annual reports of the investment trusts also added that the directors are not eligible for bonuses, pension benefits, share options, or other incentives. In this study, we will focus on the director's fees as these reports have indicated that this is the main compensation for the NEDs.

Provision 34 from the UK Corporate Governance Code states that the remuneration of NEDs should be determined by the Articles of Association or the board, some investment trusts²⁷ do not have a remuneration committee since the board is wholly comprised of

²⁶ Department for Business Innovation & Skills (2013)

²⁷ Examples: Aberdeen Standard Asian Focus PLC, BlackRock Latin American Investment Trust PLC

NEDs and there are also no employees; thus, the remuneration is determined by the board as a whole. It could be argued that if the board is responsible for determining their compensation, this can lead to a conflict of interest. Although there is a cap on the amount of remuneration payable to the directors in a year, The latter may decide for the highest value while failing to offer proportionately effective monitoring. The OECD stated that the remuneration paid to directors can sometimes be controversial due to the large payment that is made, therefore we assume that large remuneration can be problematic for the investment trust.

Andreas et al. (2012) argue that remuneration can act as a remedy for the deviation of interest between the board of directors and the shareholders which gives rise to the agency problem. Mallin et al. (2015) argue that it is difficult for shareholders to determine the performance of NEDs through their performance which could increase the agency cost. Thus, their remuneration is observed through their responsibilities. It can be argued that the NEDs in the investment trusts have the main responsibility of monitoring the investment managers but not making any investment decisions therefore their remuneration should not be excessive.

Hypothesis 7: There is better performance when remuneration is lower

3.2.4 Performance

Good corporate governance is defined by the ASX Principles of Good Corporate Governance and Best Practices Recommendations (2003) as “*the structure that encourages companies to create value and provide accountability*”. Therefore, the adoption of good governance has led to the enhancement of performance of firms and helped diminish agency conflicts, Garay and Gonzalez (2008) report such occurrences in developing countries. Firms and funds are dependent on the shareholder’ to gather capital,

along with good performance they also based their decision for investment on corporate governance. Subsequently, it can be argued that those adopting good corporate governance can help attract investors; allowing the firm to shrink its reliance on debt.

Throughout the literature, it has been observed that different metrics have been used to assess corporate performance. The most commonly used measures are categorized into either accounting-based measures such as ROE, ROA, Tobin's Q, net profit margin (Yermack, 1996; Barber and Lyon, 1996; Core et al., 2006; Gompers et al., 2003; Bauer et al., 2004); or market-based measures such as Jensen's Alpha, Sharpe Ratio. (Bauer et al., 2004). Both measures have their merits and faults, Daily and Dalton (2003) argue that accounting measures consider the current performance whilst market measures focus on the perception of investors. It has also been debated whether they could be treated as equivalent measures (Gentry and Shen, 2010)

Christensen et al. (2010) found a negative relationship between ROA and board size for Australian firms. However, the relationship was positive when Tobin's Q was employed; these two measures produce a different result due to their different nature. Munisi and Randey (2013) focused on public companies across Sub-Saharan Africa; they constructed a corporate governance index consisting of a few governance practices such as audit committee, remuneration committee, and board of directors. Using two measures of performance namely ROA and Tobin's Q, it was found that with the accounting measure there was a positive relationship between performance and the index whilst with the market valuation measure there was a negative relationship.

Klapper and Love (2004) focus on the legal environment and the protection of investors. In their model for governance determinants, they include indicators for the legal systems, and a dummy variable showing whether the firm trades American Depositary Receipts on a major US exchange. They include the latter since trading on such a platform the firms must have good governance and also have to adhere to certain US GAAP standards which improve their transparency. They also use Tobin's Q and ROA which produced a positive relationship with the governance indicator, which indicates that firms with better governance have a higher market valuation.

Jackling and Johl (2009) utilize top Indian companies in their study to investigate the relationship between performance and structure of the board, finding a positive and significant relationship between outside directors on the firm and Tobin's Q. In the same year 2009, there was the Satyam scandal which put the effectiveness of the outside directors into question. In some cases, outside directors are brought in the companies by directors already on the board, which leads those individuals to side with the existing members thus having a conflict of interests.

Following Aggarwal et al. (2011), Gupta et al. (2013) also constructed a governance index using 41 attributes available from RiskMetrics which included compensation, ownership, and board structure. They measure performance by employing the buy and hold returns to have a broader picture of performance in the long run. They found that after controlling for liquidity, risk, growth, and firm size, well-governed firms did not outperform those that were poorly governed during the crisis. They argue that when the crisis hits, investors usually become fearful and tend to move from risky assets to safer ones; while doing so they do not concern themselves with corporate governance thus the benefit from good governance is not reflected during this period.

More recent studies have focused on the effect of female directors on performance captured by both accounting measures (ROA and ROE) and market measures (Tobin's Q). Whilst Conyon and He (2017) find a positive relationship between female directors and Tobin's Q and a negative relationship with ROA. Although they utilize the same metrics, Bennouri et al. (2018) observe a negative relationship between Tobin's Q and various characteristics of female directorships such as media coverage and education. Zhang (2019) finds that firms with higher gender diversification are positively related to Tobin's Q and also revenue.

3.3 Research gaps and contribution

It can be observed that most studies carried out on closed-end funds focus on the discount anomaly and factors that contribute to the existence and persistence of this deviation. Guirguis (2018) and Gemmill and Thomas (2018) focus their discussion around rational and irrational investors affecting discount, whilst Fletcher (2018) concentrates on stock illiquidity and short selling. We find that the literature is lacking in the research of UK investment trusts which are closed-ended funds when focusing on corporate governance. Therefore, we aim to fill the gap by observing the effect of corporate governance on the performance of the funds by using discount as a measure. Discount is a persistent anomaly in investment trusts therefore it is deemed important to be considered to understand and contribute to the literature on the nature of their deviation.

Investors who invest in investment trusts are faced with two agents, a board of directors and a fund manager, which can give rise to agency conflicts therefore this study is geared towards the agency theory. Since we are focusing on the performance of investment trusts, we utilize performance measures such as ROA and ROE along with discount to identify whether the fund managers are maximizing the value of the investors under the supervision of the board of directors. In this study, we focus on the board of directors to comprehend their impact on the oversight of the fund manager which in turn can affect performance. We decided to focus on the board of directors as they have the responsibility of monitoring the fund managers and that may influence the discount in the funds.

The study carried out by Del Guercio et al., 2003 focuses on the board of directors and independent directors in US CEFs whilst Ju and Zhao (2014) concentrate on the director's ownership. Our study differentiates from these studies firstly by focusing on investment trusts that are traded on the London Stock Exchange, the literature is scarce on research for UK closed-end funds. However, apart from the selection of UK funds, this study is dissimilar as it selects a range of corporate governance characteristics which includes age and tenure of the directors, female directors, independent directors, remuneration, and ownership. To our knowledge, we have not come across a paper that utilizes the same characteristics together for research on closed-end funds.

Chapter 4 will explore the literature focusing on corporate governance in closed-end funds, whereas this section gives an overview of the studies on CEFs in general. We

believe that corporate governance will have an impact on discount, as pointed out by Boudreaux (1973), this will be explored in Chapter 5. There is a possibility of management fees affecting discounts; this fee is under the supervision of the board of directors. If they detect that the investment managers of a fund are charging too much, then they can reduce the discount by changing the managers. Furthermore, as Nanda et al. (2000) suggested, the investors will choose to invest in a fund where they believe that the managers possess the skills; therefore, it is the board's responsibility to ensure the right capable people are managing the investments in the funds.

It can be argued that some of the studies on closed-end funds focus on corporate governance characteristics such as ownership or board size, however, the focus generally remains on one factor, block holder's ownership (Cremers and Nair, 2005; Fichtner et al., 2017), remuneration (Yang and Hou, 2016). In this study, we focus on a few corporate governance characteristics, such as age, tenure, and female directors. Throughout the existing literature on closed-end funds and UK funds, the use of these characteristics together has not been detected, therefore we aim to fill the gap in the literature.

This concludes the section presenting the current literature on corporate governance and its impact on performance. It has been observed that most of the studies tackle firms, this study aims to bridge the gap between the concept of governance amid funds. There has been some coverage on the various theories attributed to corporate governance, it has been deemed appropriate to focus on the agency theory. We have also presented the various corporate governance characteristics of interest that will be used to tackle the agency theory. Chapters 4 and 5 will focus on the performance of the investment trusts by employing both accounting-based and market-based performance measures, whilst Chapter 6 will focus on the fees charged by the funds.

3.4 Data and methodology

3.4.1 Sample

This study examines the relationship between corporate governance in investment trusts based in the UK spanning over 18 years period (2000-2017). This allows for a better comprehension of performance. The lack of reported information before 2000 for corporate governance hindered the inclusion of a larger sample period. The period of study encompasses the periods after crises such as dotcom in 2000 and the global financial crisis in 2008. Since poor governance has been associated with these events, the concentration on this period will allow us to detect how funds perform overall. The selected time frame of 18 years allows for the usage of only 174 closed-end funds out of 419 funds on the London Stock Exchange. These funds were incepted in the year 2000 or before.

From the chosen sample the Venture Capitalist Trusts, which are also part of closed-end funds, were excluded because these trusts focus mainly on investing in smaller growing companies. Their size, discount, and fee would be different from investment trusts, which are also closed-end funds, and therefore they are excluded for a more homogenized data set. Amongst the remaining funds, more funds were excluded due to incomplete data availability during the selected period. Moreover, other funds were either liquidated or had changed their structure to an open-end fund, as in the case of Montanaro European Smaller Companies Trust. These further eliminations led to a sample of 138 funds, out of which the majority were equity-focused (119).

Generally, investment trusts in the UK invest almost exclusively in equity whilst the US is concentrated mainly on equity and bonds. Dimson and Marsh (2001) reported that during 2001 there were 354 UK equity-focused funds whilst the US fund market was dominated by mainly bond funds. Since the UK has a more equity-focused market for ITs, the sample chosen in this study would be a good indication of the effect of corporate governance. Equity-focused funds are generally riskier than bond-focused funds thus requiring greater supervision. The riskiness stems from the volatility of stocks, but they also offer more returns which are anticipated by investors in these funds. Therefore, the

board of directors must oversee whether the investment team is making the investments per the objectives of the investment trusts.

The remaining funds were classed in property (12), mixed assets consisting mainly of equity (5) and commodities. The final sample consisted of 123²⁸²⁹ equity-focused investment trusts incorporated before 2000 and had data availability until 2017, all trading on the London Stock Exchange. The funds with mixed assets were also selected since the majority of their investment (over 75%) is made in equities, and the remaining are either in fixed income or money market. The funds selected are under the management of 54 different management groups. The income distributions and tax implication of REITs and non-REITs investment trusts varies which can affect performance; therefore, it would not be comparable with the rest of the funds.

It can be argued that the allocation of capital in the various asset classes is dependent on the selection skills of managers. Therefore, the sample consists of only one asset class to make the sample homogeneous. The final sample in this study has been largely reduced from 419 closed-end funds to 123 investment trusts due to the selected time and asset focus. The sample has a market capitalization of £71,745,000 which represents 68% of the total market value of equity investment trusts in the UK (£105,544,000) in December 2017 (AIC, 2017a). A study on executive compensation by Gigliotti (2013) also saw a large reduction of a sample size from 331 to 145 firms due to data unavailability.

Lastly, previous studies (Cremers and Petajisto, 2009; Meschke, 2007) have focused on equity mutual funds or funds from a large family, whereas this sample takes into consideration various investment trusts from the small, medium, and large fund family. Similar to Bredin et al. (2014), we utilize closed-end funds listed on the London Stock Exchange, however, they do not specify whether they focus solely on investment trusts. It could be assumed that the sample includes various types of closed-end funds, which potentially could include VCT. Furthermore, they focus on the achievement of alpha. Fletcher (2018) focuses on UK ETFs and CEFs with international objectives, focusing on

²⁸GHS had to be excluded due to unavailability of NAV and share price, the discount could not be calculated

²⁹ See Appendix A

the diversification benefit on stock returns. In this chapter, we focus only on investment trusts, which are funds with a closed-end structure.

From the existing literature, it is evident that there is a gap in the literature for investment trusts performance from a corporate governance perspective. This is the first study to cover the chosen sample of investment trusts for the time frame, 2000-2017. We believe it will contribute to the literature on UK funds.

3.4.2 Independent variables

Previous studies have concentrated on the effect of corporate governance in US closed-end funds. Yang and Hou (2016) examined the compensation of directors in funds between 2006-2009 to capture the effect of the financial crisis, the funds traded on the NYSE, American Stock Exchange, and NASDAQ. Souther (2019b) focused on the effect of independent directors on takeover defenses between 1997-2011. Kryzanowski and Mohebshahedin (2020) focus on corporate governance variables such as board size, female directors, and remuneration between 2001-2006. The study focuses on the negotiation of advisory fees paid by closed-end mutual funds, after the Securities and Exchange Commission amendments on the disclosure of information on the process of approving advisory contracts. The contribution of this study relates to the use of UK funds and an amalgamation of corporate governance characteristics which includes age, tenure, and gender of the directors.

The hand-collected data includes board size and composition, ownership, and remuneration which will be used as independent variables. The websites of the funds in the sample provided the annual report for at least the past five years (2013-2017); however, from 2000-2012, most reports were collected from the Companies House website. Section 3.4 explored the literature on the existing governance mechanisms and

has developed the hypotheses which will be tested. The data from the sample have provided some key statistics on these characteristics such as age, female directors, and tenure. The results below paint an intriguing picture which is worth analyzing further.

- 86% of investment trusts have employed one or more female directors on their board between 2000-2017
- Prior to the year 2000, only 18 appointments were made for female directors whilst a considerable increase was made subsequent to the year with 204 appointments. At the time of their selections, 100 female directors were aged between 30-50, while 122 were aged between 51-69
- With a range of appointments between the year 1989 to 2017 as directors in the investment trusts, 94 directors who currently still hold their position are found to be aged 70 and above; amongst them, five directors were female (one sitting on two boards)
- In 103 funds, there is multi-directorship for female directors, whereby 22 female directors have been or are still holding directorship in two funds, and the remaining 15 sit/sits on 3-4 boards. In this study, we are attempting to see whether the inclusion of women can help with better performance. Their experience as directors can be attributed to monitoring skills
- Out of 1643 directors in the funds over the 18 years, the average age for directors with an appointment between 1979-1998 is 59, while the average age between 1999-2017 is 47 – indicating the inclusion of younger directors
- The lowest tenure was found in 2000 which could be linked with the inception of several funds in that year; the highest mandate was in 2012

*Choice of variables*³⁰

Non-Executive directors (NEDs)

It is proposed by Ducassy and Montandrou (2015) that independent directors have a greater ability to communicate the demand of the shareholders and protect their interests. Reguera-Alvarado and Bravo (2017) observe that after the introduction of the Sarbanes-Oxley Act, there has been an increase in firm performance as the proportion of independent directors increased. They argue that directors who do not have any material relationship with the firm, exercise enhanced monitoring over the managers that can reduce the managers from pursuing their interests and increase the benefit of the shareholders.

Female directors

Studies by Ryan and Haslam (2005), Ryan et al. (2016), and Bechtoldt et al. (2019) focus on the “glass cliff”, a term coined for the suggestion that firms promote female directors during tumultuous times. Cook and Glass (2014) observe that the transition to the position of CEO for certain minorities group--such as white female, and both women and men of

³⁰ There are also several corporate characteristics that have not been chosen such as CEO duality, most investment trusts in this sample do not have a CEO. Their parent company has a CEO but on each fund level there are only mainly non-executive directors and chairman. Therefore, CEO duality could not be used for each funds. The experience of directors was also not included as the effect of experience was captured through age, tenure, and occupation.

color—were more likely to occur when the firms faced declines in their accounting performance. Elsaid and Ursel (2018) also observe that there was a higher chance for women to be promoted to the position of CEO during precarious times. When their roles were assumed there were greater stock price volatility and low accounting-based profitability.

The OECD (2017) argues that since women's educational achievements are at par with men in western countries, there is a need for the adjustment of the female presence on the board of directors to achieve maximum board quality. Abad et al. (2017) find that there was lower information asymmetry (measured by bid-ask spread) in Spanish firms when there was an increase of female directors on the board. They propose that female directors may lead more extensive discussions in the board which allow for greater exchange, thus limiting the production of private information. Pan and Sparks (2012) add that women display higher ethical standards when making decisions, which leads to a lower likelihood of manipulation and greater audit effort.

Post and Byron (2015) detect a positive relationship between accounting returns and female presence on the board of directors in countries where there are stronger shareholder protections. They utilize a meta-analysis approach whereby they consider the conditions that can affect the relationship between gender diversification and performance. Female representation has an impact on board activities such as monitoring and strategy development. Papangkorn et al. (2019) argue that during crises, firms need greater monitoring activities and different advice, which can be delivered by female directors. They suggest that the latter provide different perspectives and ideas. Their findings show that during 2008 an increase of female directors on the board was associated with a rise of 8.41% in ROA.

Age of directors

Xu et al. (2018) focus on board age and financial fraud. They argue that older directors have more to lose, therefore they are motivated to engage in stronger monitoring of the CEO's activities. They found that when the average age of the board members increases, there is less likely that the CEO will engage in corporate fraud. Similar to this study, we study age by using the average age of independent directors on the board. Hambrick and Mason (1984) found that as directors acquire more experience and approach the end of their career, they become less willing to put their reputation at risk and therefore they become more diligent in their monitoring duties. Kang (2008) argue that as directors get older, they have the opportunities to serve as directors on various boards and are therefore more wary of their monitoring duties since a mishap could jeopardize their career.

Tenure of directors

Livnat et al. (2020) propose that the long tenure of directors is a sign of the firm's stability and shareholder's satisfaction with the appointment of these directors. It was seen that a quarter of companies trading in the US in 2016 mostly had directors who had served more than a decade on the board (Francis and Lublin, 2016). From a psychological perspective, Pierce et al. (2001) argue that CEOs develop a "strong sense" of ownership when they serve the organization for a long period of time, which can lead to better commitment towards the organization.

However long-tenured directors draw attention to the potential attachment they may develop with management, which would hinder the effective monitoring of their duties. McClelland et al. (2012) argue that there can also be "resistance to necessary strategic changes," which could be detrimental to the performance of the firms or funds. Oh et al. (2018) add that CEOs with a long tenure may be lacking in exercising flexibility. They

observe that CEOs pay less attention with respect to CSR, due to commitment to the *status quo*. It can be argued that such a fixed mindset could affect investment trusts since the funds and the managers are failing to comprehend the potential interest of investors.

Ownership

Connelly et al. (2010) conduct a study that focuses on various ownership structures. They broadly categorize ownership as an insider (board of directors, managers, employees) and outsider (Blockholders, private equity, government). In this study, we focus on the director's ownership and substantial ownership, since they were the two types of ownership structure that were observed within equity investment trusts. Investment trusts do not have either employees or any affiliation with the government thus we could not focus on those ownership structures. Furthermore, since the investment managers are typically a subsidiary of the parent company, we observe managerial ownership within the substantial ownership. Prior studies by Ghosh and Sirmans (2003), Frank and Ghosh (2012), and Chung et al. (2012) have focused on Real Estate Investment Trusts (REITs) and utilized institutional ownership. therefore in this study, we aim to also use substantial ownership within the context of investment trusts.

Shan et al. (2019) focus on the relationship between managerial ownership and audit quality which is measured by the audit firm size and audit fees. It can be argued that low managerial ownership can be indicative of the divergent interest of the managers, leading to shareholders preferring higher audit quality to detect potential opportunistic behaviors. However, if the managers hold larger ownership in the firms, the investors will not have to incur a high audit fee to benefit from better auditors, since higher managerial ownership indicates that there is a convergence of interests between the agents and principals.

Dixon et al. (2017) focus on Chinese listed companies between 2004-2010. They find that large shareholders are usually long-tenured which leads to longer investment objectives. They argue that a longer investment horizon help mitigate the desire for the short-term incentive which enhances efficiency. Crane et al. (2019) find that when institutional investors group together, their ownership concentration increases which leads to an increase in voting against poor management quality. Chung and Lee (2020) found that there was a higher concentration of institutional ownership for firms that have a majority voting method. It is found that directors voted through majority voting exercise greater responsibility and are more diligent with board meeting s attendance (Choi et al., 2016).

Arouri et al. (2014) found that banks in GCC countries had better performance, measured by Tobin's Q and market to book value, in the presence of higher institutional ownership. They suggest that these large investors have more resources and experience to assist the monitoring of the managers which would deter the latter to have conflicting objectives. Denis et al. (1997) found that independent directors with large shareholdings could help mitigate agency conflicts, Tang (2017) add that these directors may have a larger influence on the rest of the board to enhance monitoring.

Remuneration

Dah and Frye (2017) developed a model to predict the expected remuneration of directors. They found evidence of overcompensation of over \$60,000 per director. However, they do witness a decrease in the overpayment over time which they link with increased scrutiny. We can argue that overcompensation of directors can be seen as an incentive that is awarded to them for better monitoring. The directors would feel more valued by the firm and would also work harder in order to maintain that high payment. Zhou et al.

(2018) found that directors were more likely to commit fraud when their pay was relatively low.

3.4.3 Dependent variables

When studying the effect of corporate governance on performance, both accounting measures and market-based measures have been utilized (Kiel and Nicholson, 2003). Accounting-based measures such as ROA and ROE have been attached with criticisms due to potential manipulation by management. Since gearing is allowed in investment trusts, managers can use debt to execute investment decisions, and increasing the amount of debt in the fund will increase the ROE (Whittington, 2007). And lastly, since they utilize historical data, they are deemed to be backward-focused. Despite some of these critics, ROA and ROE allow investors to discover the long-term trajectory of efficiency, to be able to detect whether managers are harnessing investment opportunities well.

In investment trusts, the issuance of shares and retraction from the market is decided by the board and does not rely on the decision of managers. Therefore, it can be argued that it is less likely to be manipulated. The board of directors is also in the loop with regards to the investment strategy that managers carry out which ultimately affects the assets of the funds. Furthermore, the ratios will be used for comparative purposes to previous findings and against the market-based performance measures in the next chapter. Market-based measures can also be problematic during volatile and unstable markets as pointed out by the European Central Board (2010). Therefore, we will focus on both types of performance measures in this study for better comprehension.

Accounting-based measures: ROA and ROE

Return on asset (ROA) is an important indicator of performance for the funds. This measure helps indicate the ability of the managers' to utilize the asset, which is the capital provided by the investors to generate income. The shareholders are contributing to the management fee every year, and in return, the fund managers who are being supervised by the board of directors should generate an income that will satisfy the investors. Return on equity (ROE) will be used in this study as a measure of performance as it will allow us to measure the profitability of the fund as well as focus on whether managers are managing the fund's assets well after factoring in debt usage.

Baysinger and Butler (1985) and Leng (2004) used ROE to investigate the relationship between corporate governance and firm performance. They detect a positive relationship indicating that there is the creation of shareholder wealth. The decisions made by the investment team along with an efficient corporate governance structure determine the investments that are made, therefore they would stay away from projects with negative NPV or low-performing stocks. When debt is utilized, profit from the investment is diminished and this has an impact on ROE, thus highlighting the need to use ROE as a performance measure.

Using both ROE and ROA, Bennouri et al. (2018) find that the inclusion of more female directors on the board help increase both of these measures of performance which they link with their attributes such as experience and skills. In this sample, there is a higher percentage of women who have experience as directors and chartered accountants which is helpful in the monitoring of investment managers. Therefore, we could potentially detect high ROA and ROE in funds where there are more female directors. Chong et al. (2018) focus on the effect of corporate governance in Asian REITs and also use both ROA and ROE as measures of performance. They find that there is a negative relationship between ROA and dividend payout ratio whilst the size of the REITs (measured by market capitalization) and profitability are positively associated with ROE.

Tehrani et al. (2006) use institutional ownership of the S&P100 firms and found that when these large shareholders were present in the firms, there was a positive impact on industry-adjusted ROA. The latter can pressure managers to act in the best interest of shareholders. During the same period, Yuan et al. (2007) explore the substantial shares

owned by mutual funds in China, and also found better performance when block holding ownership increases, using Tobin's Q and ROA. They further add that the regulatory change over the years has made it easier for mutual funds to make investments.

ROA is a measure of performance that is related to the management's competency for the efficient use of resources that belongs to shareholders. It is aligned with the agency theory, the theory which shapes this study. This metric helps assess whether the fund managers have utilized the resources provided by the investors well by making sound investments which leads to wealth maximization. It will also determine whether the board acted as a useful monitor who ensured there was no misuse of resources.

3.4.4 Control variables

In this section, we will discuss the control variables that have been chosen for this study. These variables have been picked as they are deemed to be the most important in the context of investment trusts and have been considered through various studies as discussed below. The sample of funds is comprised of investment trusts that have been trading for over 100 years whilst some funds started trading much after which creates a large discrepancy between their age and size. Furthermore, we have observed that investment trusts were amongst some of the investment vehicles that are allowed to take on debt, therefore gearing was significant as it can potentially affect investments.³¹

³¹ Control variables such as risk level and liquidity has not been included in this study as they are deemed to be more applicable in the context of firms rather than funds. The variable market-to-book value has already been utilised as the variable, discount which is a dependent variable in Chapter 4; thus, we did not use this variable as a control variable.

Fund size

The relationship between size and performance has provided mixed evidence. In the financial world, larger firms tend to face fewer barriers when raising capital to finance their projects or investments as they can use internal sources which have been generated from their past actions (Joh, 2003). Also, the larger funds can benefit from economies of scale in managing their portfolios, whereby the transaction costs are lower when a higher proportion of stocks are traded. This is aligned with the proposal of the agency problem by Jensen (1986). The agents of firms or funds possess the motivation to increase the size of the firm in an attempt to gain more power or to accumulate control over more assets.

The larger the firm, the more diversified the operations become. Therefore, there is a greater need to ask advice from the board more often; this can also lead to the pursuit of more efficient strategies and lead to better performance. It also becomes more accessible to raise funds as they have more collateral in terms of their assets. Furthermore, the higher number of managers to manage these increased assets can provide a wide range of knowledge and expertise, which can positively affect performance (Black et al., 2006). Kim (2005) shows that there is a positive relationship between size and performance and Short and Keasey (1999) find that larger firms have better access to external sources of finance.

On the other hand, when the firms or funds are larger the managers may lose control over the management of many assets, Aggarwal and Knoeber (1996) reported a negative relationship between firm performance and size. Moreover, they found that larger firms are subjected to more inspections, and the costs of compliance with the governance code also increase as opposed to smaller firms (Garen, 1994). The expenses of the agency are also likely to increase due to the need for more oversight on the actions of the managers in being opportunistic. As pointed out earlier when the firms become larger, there is also a need for more expert managers to carry out investment, this can also lead to conflicts due to different ideas and strategies by different individuals.

In this study, the log of market capitalization will be used as a proxy for investment trust's size, similar to studies by Carson (2002) and Mohanty (2002). The information about the outstanding shares and share prices were taken from the balance sheet of each fund over 18 years. It can be assumed that funds under large management groups such as Blackrock tend to be more popular due to their long existence in the fund world. This can ease the raising of external funds if they want to finance their investment with debt. Moreover, also due to economies of scale, they can keep their fees low which will, in turn, attract more investors and lead to even more popularity.

Fund age

Age has been used in several studies (Boone et al., 2007; El Ghouli and Karoui, 2017) focusing both on firms and funds. The sample of investment trusts to be used in this study contains several funds that have been in existence since the late 1800s while others started trading in 2000. The age differences can be considered to be a significant factor that affects performance. Due to the wide difference between the ages of the funds in this study, this variable needs to be used as a control so that it does not strongly influence performance as it can be an indicator of expected growth opportunities.

Chen (2001) proposes that older firms are more efficient due to the learning curve effect and can potentially provide better performance than younger firms. Randoy and Goel (2001) and Black et al. (2003) found that older banks may have more substantial profits due to their learning efforts and also on account of goodwill accumulation. Since the age of the funds may have an impact on the profitability and knowledge accumulation, it needs to be controlled. Claessens et al. (2002) add that liquidity is more significant for older and bigger firms due to their diversified activities that attract more attention from analysts. Therefore, there is a lower risk of distress linked to them.

On the other hand, younger firms experience better growth opportunities due to the flexibility in adjusting and innovating. Boone et al. (2007) show that older firms are not able to adapt to changes in the market as well as younger firms. Pastor et al. (2015) argue that increasingly active mutual funds require greater skills and younger funds have been able to provide better skills leading to outperformance compared to older funds. Their higher abilities can lead to the avoidance of new strategies that could lead to the erosion of the funds.

The dominance of older firms in the sample and their persistent presence showcase that potentially older firms have been experiencing better performance. It is found that during the year 2000, 82 investment trusts were aged above 10 years; out of which 16 were aged above 100 years. Although younger firms can jump on new opportunities easier, they also have more significant exposure to adverse market conditions, and also their lack of industry experience and attempt to establish their presence in the industry could hinder performance. The ages for the funds in this study are obtained from the London Stock Exchange website, where the inception date on the exchange was used to calculate the age.

Gearing

Modigliani and Miller (1958) propose that firms choose a mixture of debt and equity to maximize the value of the shareholders, the capital structure policy is varying across sectors and industries. The usage of liability must be reasonable due to the fixed large amount of interest paid annually regardless of the level of profit made. De Wet (2006) shows that when a firm detects its optimal structure, it can lead to value enhancement. Thus there is a positive relationship between profitability and debt. Gearing allows investors to measure the stability of the firm, it measures the amount of debt and equity

that are utilized by the firm to finance its assets; an increase in debt causes a larger gearing ratio to be obtained.

Furthermore, the lower debt the firm takes leads to a higher tax burden which in turn lowers the profit. When the usage of debt is increased it leads to a greater tax shield however the risk of financial distress is also present (Pandey, 2007). It is also proposed that since there is an inherent asymmetry of information in firms, managers possess more information and have some knowledge about the prospects of the firms and therefore can increase debt which sends a positive signal to the market and potentially can attract more shareholders and boost the share price (Ross, 1977).

Myers (1977) shows that when firms use debt as financial means, it leads to the issue of underinvestment since there is a fear of embarking on a specific investment. Hence they invest up to the point of earning a return to cover the payment of bondholders. Desai (2007) shows that the value of firms is affected by the capital structure, the value of the firms was lower with high leverage use. Rowland (2002) adds that when the interest rate exceeds the internal rate of return of the firm, there is a risk that interest cannot be covered. The repayment of debt is the contractual agreement which must be repaid to the lender by the borrower.

The data to calculate the gearing ratio is obtained from the annual report. Investment managers often base their management fee on the gross asset of the fund which represents the market value of the asset, therefore they are tempted to increase gearing where more money is available. The increased management fee as detected by Boudreaux (1973) leads to the presence of a discount, therefore we also hypothesized that with higher gearing there will be worse performance. There is more focus on management in the subsequent chapter which will allow us to explore the relationship between gearing and fee in more detail.

Dividend payout ratio

Dividend plays an important role for the investors as well as the investment trusts due to their influence on stock price which contributes to the value of the firm. The pattern of the dividend policy varies across institutions and also countries, based on the development of the financial market. Managers must decide on the retention and payout ratio (Ross et al., 2002), which can give investors an indication of the financial performance of the firm. DeAngelo and DeAngelo (2006) link agency costs with the dividend policy, they found that managers in the firm may opt for a dividend policy that would enhance their private benefit instead of strengthening the wealth of investors.

Brav et al. (2015) add that firms are sometimes reluctant to change or cut down dividends for fear of attracting negative attention to the firm. The market may assume that the firm is in trouble and uncertainty arises amongst investors and this has an impact on share prices. Jensen (1986) argued that conflicts between managers and investors can be reduced by limiting the amount of capital that is available. Thus the dividend policy can help limit the cash flow available by paying out more dividends to the investors; it also restricts investment in potential unprofitable projects.

Ghosh and Sirmans (2006) also add that managers whose goal is to increase the size of the funds tend to embark on investment that leads to value destruction for shareholders which leads to the payment of a large dividend to appease investors. On the other hand, managers who have the skill to detect good investment opportunities will not need to pay investors with such high dividends. The authors found that dividend did have an impact on REIT performance, using a sample of US REITs. Bauer et al. (2010) find that the value of US REITs is not affected but corporate governance, but when focusing on dividend payout they discovered that there is a need for better corporate governance for funds that pay lower dividends due to more cash availability at hand.

Kim et al. (2013) focus on a sample of US equity-focused closed-end funds. They found that upon announcing that a minimum dividend policy (MDP) is adopted it helped reduced the level of discount they trade at; this finding was also supported by Johnson et al. (2006)

who also detected a reduction in discounts and amassing greater excess returns. In this study, we will utilize the dividend payout ratio as a control whereby the total dividend paid is divided by the net income to get the payout ratio.

3.4.5 Dummy variables

Our investigation will include some dummy variables related to the tenure of the auditors and buying back shares. We use audit tenure as it has been observed that there some investment trusts such as Bankers Investment Trust (BNKR) and Mercantile Investment Trust PLC (MRC) had the same auditor for longer than 100 years. Whilst share buy-back is a common mechanism that is used by the fund to increase the NAV per share and narrow the discount level. The board of directors must seek permission from the shareholders before executing the repurchase of the shares. Furthermore, the fund should not repurchase more than 14.99% of the shares from the market (BMO, 2021), this action will shrink the size of the fund which can create liquidity issues.

Auditor tenure

The regulatory changes brought forward by the Financial Reporting Council in the Code of Governance (2016) as well as the EU Statutory Audit Directive and Regulation sets out reforms for auditors in large companies in the UK. Under the EU regulations, public entities need to appoint new auditors every 10 years. However, the UK has opted for a maximum of 20 years subject to carrying out public tendering at least every 10 years.

It is also important to note that some investment trusts (e.g.: Foreign & Colonial Investment Trust and The Bankers Investment Trust) in the sample have been trading for over 100 years and they had the same auditor since their inception, which could hurt the performance and could also be a contributing factor to the reason why these funds have continued to trade at a discount. Furthermore, their objectivity could be questioned as the auditors could have developed a close relationship with the investment managers or the board of directors. For instance, in 2015 the oldest investment trust, which was Foreign & Colonial Investment Trust, had been operating for 147 years and their auditor also had a tenure of 147 years.

Studies carried out by Casterella et al. (2004) and Francis (2004) have shown that there are more audit failures and less likelihood of preventing fraud when the audit tenure is long. In this study, audit tenure is also used. Auditors can be seen as defenders of the investors by overseeing the activities in the fund which encompasses the actions of both the investment manager and the board of directors. Singer and Zhang (2018) find that ‘fresh eyes’ of auditor does improve their analysis. They detect greater magnitude of misstatements when firms have auditors with longer tenure and also that timely discovery is detected in the first ten years of the audit engagement.

The maximum audit tenure as set by the regulators is 20 years for the UK. Using the maximum as a benchmark, we propose that any investment trusts where the auditor’s tenure is longer than 20 years will be assigned with 1, otherwise 0.

Shares buy-back

The practice of shares buyback is often carried out by firms as an alternative to paying dividends (Allen et al., 2000) whilst other embark on this strategy as part of the free cash flow hypothesis whereby the excess cash is not used aimlessly or increase the leverage ratio (Opler and Titman, 2001). In the case of investment trusts, they engage in shares repurchase for a different reason; they do so in an attempt to tackle the level of discount, this important task is conveyed to the board of directors (Williams, 2017). Lee et al.

(1991) state that closed-end funds have been allowed to carry out share repurchases since 1980. If the board does not tackle the discount level, and it carries on widening then the existing shareholders will be discouraged and might sell off their shares since they would not be benefiting from any growth in their capital.

When investment trusts carry out shares repurchase, existing investors benefit since the NAV is enhanced, and therefore share price is traded closer to its intrinsic value. The new investors can also exploit the discount anomaly, by purchasing the shares at a discount before the repurchase, afterward when the discount is lowered the share will have a greater value which could be sold off. Salhin (2013) states that investment trust can either carry out large scale buybacks when the discount reaches a specific level or by buying back whenever discounts widen. The repurchase of shares from the market allow for discount to be managed however it also reduces the size of the fund. When the size of the investment trust shrink it may have a negative effect on the investment managers, as their fees are usually charged on the net asset. It can be argued that if their fees are reduced, poor performance may follow suit thus requiring better monitoring from the board.

When investment trusts carry out shares buy back from the market, it is assigned 1; otherwise 0.

3.4.6 Research methods

Research model

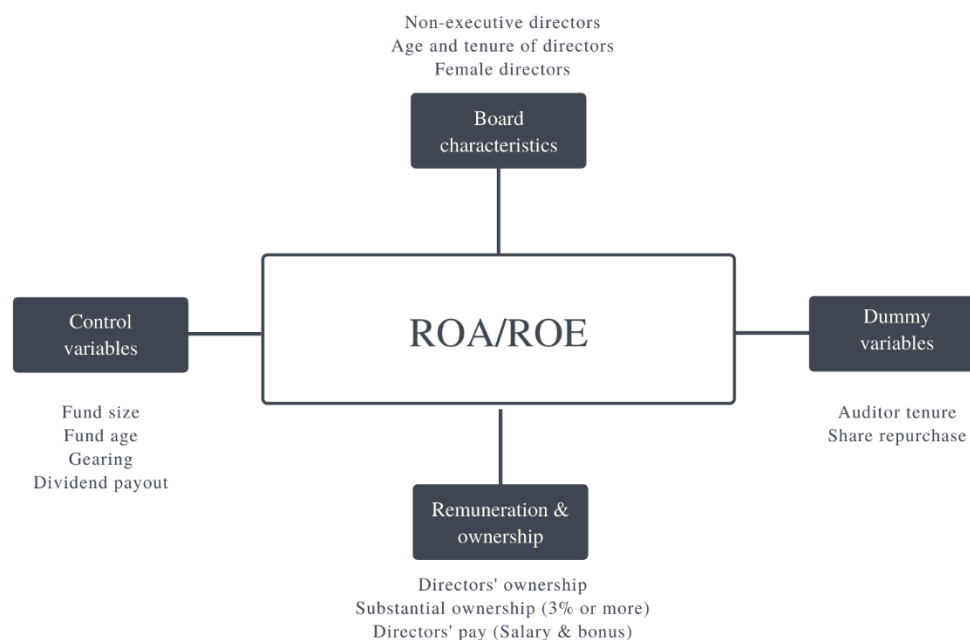


Figure 4 Overview of variables

Table 4 Summary of the proposed hypothesis, descriptions & expectations

	Hypothesis	Definition	Symbol	Expectation
<i>Dependent variables</i>				
Return on asset		Net income / total assets	ROA	
Return on equity		Net income / equity	ROE	
<i>Independent variables</i>				
Non-executive directors (NEDs)	H1	Number of NEDs on the board	NEDS	+
Female directors	H2	The proportion of female directors on the board lagged by 2 years	FEM_2	+
Age of directors	H3	The average age of the directors (ln)	LNAGE	-
Tenure of directors	H4	The average tenure of directors (ln)	LNTEN	-
Directors' ownership	H5	Total ownership of the directors as a percentage of total shares outstanding	DOWN	+
Substantial ownership	H6	Total of ownership of shareholders owning 3%	SOWN	+

	Hypothesis	Definition	Symbol	Expectation
Remuneration	H7	or more as a percentage of total shares outstanding Total compensation paid to directors (ln)	LNREM	-
<i>Dummy variables</i>				
Audit tenure		The average tenure of the auditor – tenure longer than 20 years assigned 1 otherwise 0	AUD	-
Share repurchase		Number of shares repurchased – when shares are repurchased it is assigned 1 otherwise 0	SHARE	+
<i>Control variables</i>				
Fund size		Size _t = ln (Market capitalization)	LNMCAP	+
Fund age		Age _t = age at the time, t	FUGE	+
Gearing		Gearing _t = Debt _t /equity _t	GEAR	-
Dividend payout ratio		Dividend payout ratio _t = Total dividend _t /net income _t	DIV	+

Data source: ROA and ROE were manually computed using total assets, equity, and net income from the annual reports for each investment trust throughout 2000-2017. The data for NED, female directors, substantial ownership, director's ownership, and remuneration were collected from the annual reports. On the other hand, the age and tenure of directors were computed using information from the website, Company Check. Fund age was acquired from the London Stock Exchange website. Other data such as shares outstanding, market price, liabilities, and dividends were acquired from the annual report and used in the computation of the control variables. The dummy variables include audit tenure where the auditor's tenure is longer than 20 years will be assigned with 1, otherwise 0. If the investment trusts carry out shares buy back from the market, it is assigned 1; otherwise, 0.

Equation 1 Research model for performance measure (ROA & ROE)

$$\begin{aligned}
 Y^* = & \beta_0 + \beta_1 NEDS + \beta_2 FEM_2 + \beta_3 LNAGE + \beta_4 LNTEN + \beta_5 DOWN + \beta_6 SOWN \\
 & + \beta_7 LNREM + \beta_8 AUD + \beta_9 SHARE + \beta_{10} LNMCAP + \beta_{11} FUGE \\
 & + \beta_{12} GEAR + \beta_{13} DIV + FUNDDUMMY + YEARDUMMY + \varepsilon
 \end{aligned}$$

The variables used in the equation are as follows: Y*= Return on asset (ROA) or Return on equity (ROE), NEDS= Non-executive directors, FEM_2= Female directors lagged by 2 years, LNAGE= Age (ln), LNTEN= Tenure (ln), DOWN= Director's ownership,

SOWN= Substantial ownership, LNREM= Remuneration (ln), AUD= audit tenure, SHARE= share repurchase, LNMCAP= Market capitalization (ln), FUGE= Fund age, GEAR= Gearing, DIV= Dividend payout

Pooled Ordinary least Squares (OLS)

The sample in this study consists of panel data where the dependent, independent, and control variables for each 123 investment trust are collected for 18 years (2000-2017). This study will use a pooled OLS regression for multivariate regressions to test the hypotheses derived as shown in Table 4. Figure 4 shows an overview of the corporate governance characteristics that will be used in this chapter along with the control variables. The performance measures utilized in this chapter are ROA and ROE.

When panel data is used, the most commonly estimated models are fixed effect and random effect models. When variables are omitted and these are correlated with the variables in the model, fixed effect models are utilized. On the other hand, the random effect is preferred when there is no omission of variables or it is believed that the variables that have been omitted would not correlate with explanatory variables (Brooks, 2008). The Hausman test is performed to determine whether fixed effect or random effect models are used. The test has a null hypothesis that states that the random effect model is the appropriate model and the alternative hypothesis state the opposite where the fixed effect is more appropriate.

Table 5 shows the results from the Hausman test, with a 5% significance level when the P-value is less than 5% the null hypothesis is rejected, and therefore the fixed effect model is used. We employed pooled OLS regression and include fund and year dummies.

Table 5 shows the results from the Hausman test

Dependent variables			Decision
ROA	Prob>chi2 =	0.0000	Fixed effect
ROE	Prob>chi2 =	0.0000	Fixed effect

The OLS regression has been used in various studies such as Barros and Nunes (2007), this study tested the relationship between pay and performance; Bauer et al. (2010) also use this method to focus on corporate governance in REITs. Green and Homroy (2018) used OLS regression and concluded that with greater gender diversification on the board there was also higher profitability as measured by ROA. Schultz et al. (2017) also employed pooled OLS regression to reveal that insider ownership decreased the probability of default. On the other hand, an increase in the remuneration of the directors increased the risk of default.

The Ordinary Least Squares is a common method to estimate the linear regression which we will utilize in this study to predict the effect of corporate governance mechanisms on performance and fees. Prior to running the regressions, it is important to consider the OLS assumptions, since the lack of attention on them could result in incorrect findings. Table 6 shows the assumptions for the OLS regression shows the assumptions along with the relevant tests that have been utilized for the detection; each assumption is assessed to see if any violations need to be addressed. The next paragraph discusses each assumption in greater detail.

Table 6 shows the assumptions for the OLS regression

Assumption	Detection/test	Is there a violation?	Solution
Normality	Shapiro-Wilk test Histogram	Yes	Logarithmic transformation

Assumption	Detection/test	Is there a violation?	Solution
Homoscedasticity	Residual v/s fitted plot Breusch-Pagan test	Yes	Logarithmic transformation Robust standard errors Fund and year fixed effect dummy variables
Autocorrelation	Durbin-Watson test	No, the test does not detect first-order autocorrelation	
Multicollinearity	Correlation matrix Variance inflation factor (VIF)	No, since the correlation matrix did not provide any high correlation between the variables, and there was a low VIF	
Endogeneity	Wu-Hausman test	Yes	Use a considerable number of periods Lagged data Two-stage least squares

Source: Chumney and Simpson (2006, pg. 101-103), Brooks (2008, pg. 129-174)

Assumption 1: Normality

It is assumed that the error term would be normally distributed with a mean of zero.

Detection/test

We tested for normality by employing both the Shapiro-Wilk test (Table 77) and a graphical method by using histograms (Figure 5). The results from Table 7 Shapiro-Wilk

test showed that the P-value is less than 5% significance level which means that the null hypothesis is rejected. This leads to the conclusion that the variables are not normally distributed. Furthermore, we can graphically observe that the variables are again not normally distributed from the histograms.

Table 7 Shapiro-Wilk test

Variable	Observations	W	V	z	Prob>z
ROA	2,214	0.82	239.94	13.99	0.00
ROE	2,214	0.81	249.51	14.09	0.00
NEDS	2,214	0.99	13.22	6.59	0.00
FEM_2	1,968	0.98	28.25	8.49	0.00
LNAGE	2,214	1.00	5.25	4.24	0.00
LNTEN	2,214	0.98	28.41	8.55	0.00
DOWN	2,214	0.32	889.64	17.34	0.00
SOWN	2,214	0.98	23.48	8.06	0.00
LNREM	2,214	0.96	58.35	10.38	0.00
AUD	2,214	1.00	4.02	3.55	0.00
SHARE	2,160	1.00	0.77	-0.66	0.75
LNMCAP	2,214	0.97	37.14	9.23	0.00
FUGE	2,214	0.84	211.69	13.67	0.00
GEAR	2,214	0.71	377.33	15.15	0.00
DIV	2,214	0.03	1257.76	18.22	0.00

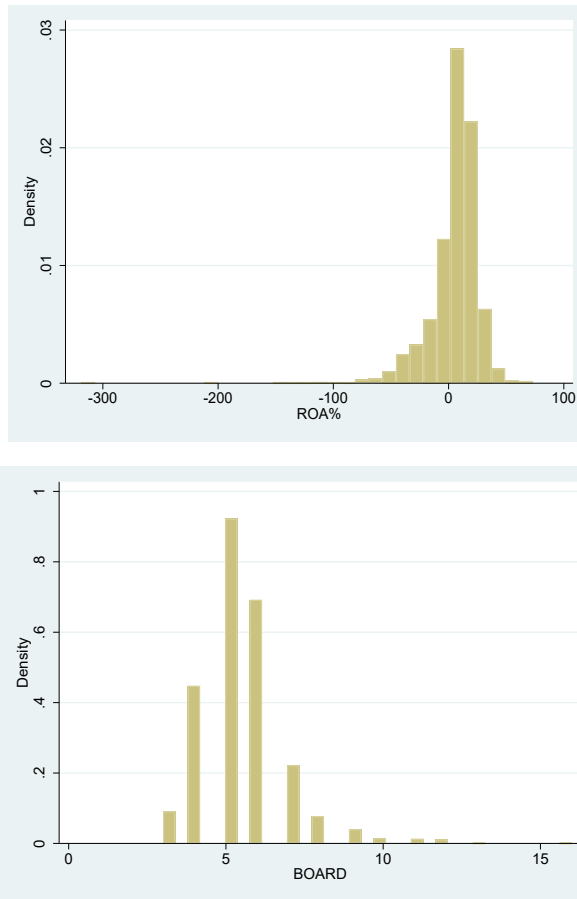


Figure 5 Histograms of ROA and Board size

Solution

Logarithmic transformation was carried out on some independent variables.

Assumption 2: Homoscedasticity

The error terms are assumed to have equal variance, however, when the variance is not constant it gives rise to the condition of heteroscedasticity (Kennedy, 2006).

Detection/test

The most common tests to detect this violation are the Breusch-Pagan test, White test, and Spearman test (Baum et al., 2003). It is important to detect whether the sample is plagued with heteroscedasticity as it can lead to invalid statistical tests of significance (Johnston, 1972). Figure 6 and Figure 7 below show that there is a problem of heteroscedasticity in the models.

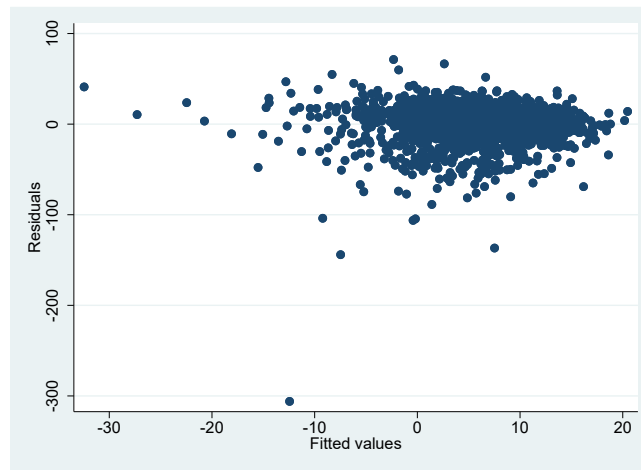


Figure 6 Residual v/s fitted plot for ROA

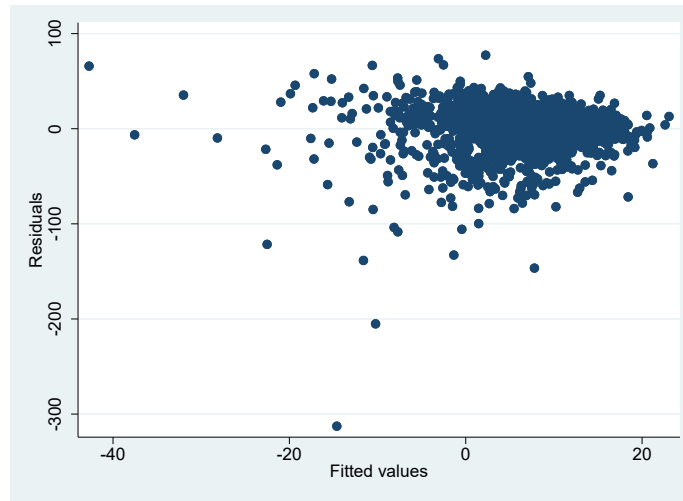


Figure 7 Residual v/s fitted plot for ROE

This is further supported by the Breusch Pagan test shown in Table 8 Results from Breusch Pagan tests. The null hypothesis from the test indicates that there is a constant variance for the residuals. Since the P-value is less than 5%, we reject the null hypothesis further accepting the presence of heteroscedasticity. The presence of non-constant variance for residuals will lead to some data that will need to be transformed and robust standard errors can be utilized since biased standard errors affect the t-test which also impacts the significance values. Furthermore, the high Chi-Squared is also indicative that heteroscedasticity is present and needs to be addressed to avoid biased standard errors.

Table 8 Results from Breusch Pagan tests

Dependent variables	H0: Constant Variance	
ROA	Chi (1) = 678.82	Prob > chi2 = 0.0000
ROE	Chi (1) = 934.66	Prob > chi2 = 0.0000

Solution

Since the Breusch Pagan test highlights the presence of heteroscedasticity, we utilized robust standard errors in the regressions to avoid obtaining inaccurate results. Furthermore, we also transformed several variables into logs such as age, tenure, remuneration, and market capitalization. The inclusion of fund fixed effect and year fixed effect dummy variables would help control for unobserved heterogeneity.

Assumption 3: Autocorrelation/serial correlation

The errors for any two data points are assumed to be uncorrelated, which means that they are independent. If they turn out to be correlated, autocorrelation will be present and the estimation will be biased and inefficient.

Detection/test

The Durbin-Watson test can be used to detect the first autocorrelation between a residual variable with its previous value. It helps detect whether the residual terms are correlated with one another (Brookes, 2008). When the d-statistic is more than 0.05 then there is no rejection of the null hypothesis which states that there is no serial correlation (Durbin and

Watson, 1971). The results from Table 9 shows that first-order correlation is not present in the data.

Table 9 Results from Durbin Watson Test

Dependent variables	Durbin-Watson d-statistic (15, 1968)	Decisions
ROA	1.930899	No rejection of null hypothesis
ROE	1.918159	No rejection of null hypothesis

Note: H0: no serial correlation

Assumption 4: Multicollinearity

When there is a high correlation between variables, it can be assumed that multicollinearity is present. If independent variables are highly correlated with each other, it will affect their effect on the dependent variable (Kumari, 2008). The presence of multicollinearity can cause large forecasting errors, and it also makes it complicated to determine the importance of the individual variables. The relationship between the correlated variables would render it difficult to know what is driving the relationship between the corporate governance characteristics and performance.

Detection/test

The presence of multicollinearity can also be firsthand detected through the correlation matrix. If the correlation between the variables is more than 0.8 there are chances that there is collinearity. Table 13 The Pearson correlation matrix for the variables with ROA and ROE (Section 3.5.2) shows that in this dataset there is a high correlation between two dependent variables (ROA and ROE), there is no high correlation amongst the independent variables as all coefficients were less than 0.9 (Pallant, 2011), Hair et al. (2010) add that the critical level is 0.8.

Multicollinearity can also be detected by checking the variance inflation factor (VIF) for each of the individual independent variables, which helps measure the degree to which each variable is explained by the other explanatory variables (Chau and Gray, 2002). As per Wooldridge (2002), the VIF test is formulated as follows: $VIF = \frac{1}{1-R_i^2}$, Gujarati (2003) adds that a VIF larger than 10 indicates an issue of collinearity, and below 10 there is no concern. Table 10 indicates that the VIF is very low and thus there is no issue of multicollinearity. This finding is also supported by the Durbin Watson test in Table 9.

Table 10 Test for multicollinearity using the VIF

Dependent variables	If VIF<10, no multicollinearity	Decision
ROA	Mean VIF 1.41	No multicollinearity
ROE	Mean VIF 1.41	No multicollinearity

Assumption 5: Endogeneity

It is assumed that there is no link between the errors and the independent variables, however, when the error terms and the explanatory variables become correlated it gives rise to the problem of endogeneity. Previous studies by Adams et al. (2010) and Akbar et

al. (2016) have pointed out that when focusing on corporate governance, the problem of endogeneity may arise. Our study focuses on corporate governance characteristics such as board size and gender and their impact on performance. Like those studies, there is a potential that we may encounter similar problems. Therefore, we need to run tests to detect whether this violation is present. When there are omitted variables in the sample, the dependent variable may be explained by those variables. It can be possible that the omitted variables may be correlated with the independent variables.

Endogeneity can be caused by reverse causation. Black et al. (2004) pointed out that firms with good performance may adopt better governance practices to gain even better performance in the future. The adoption of “good corporate governance” often sends a good signal to the market, instead of the governance structures affecting performance it can sometimes be the signal itself that leads to better performance due to the perception that the managers will have their interest aligned with the shareholders. Bauer et al. (2010) proposed that when there is higher market valuation it may lead to the prompt establishment of stronger corporate governance mechanisms which send a positive signal in the market and allow for potentially lower costs of external finance sources.

Detection/test

Following past studies (Wintoki et al., 2012; Cheung et al., 2015), it has been widely argued that the study between the performance of firms and funds and corporate governance characteristics can lead to the issue of endogeneity. Kieschnick and Moussawi (2018) argue that if endogeneity is present it would lead to biased estimates and the results from the linear models would not be useful--thus we would not have a proper assessment of the impact of corporate governance on the performance of investment trusts. Studies by Sheikh et al. (2018) and Aslam et al. (2019) have detected an endogenous relationship

between performance and pay. We also focus on the remuneration of the directors being an endogenous variable.

It can be argued that the remuneration of the board of directors can be influenced by the performance of the investment trusts. Since the directors are responsible for narrowing the gap between NAV and the share price in the funds, their remuneration could be based on the reduction of discounts. Before we proceed with any regression, we conduct the Wu-Hausman test to determine if there is an endogeneity problem. Table 11 shows that the P-value is significant which shows that we do indeed have an endogeneity problem.

Table 11 Test for endogeneity using the Wu-Hausman test

Dependent variables	H0: Constant Variance	
ROA	F(1,1953) =2.973	(0.0847)
ROE	F(1,1953) =2.802	(0.0943)

Solution

Meschke (2007) and Kryzanowski and Mohebshahedin (2016) point out that the use of a considerable number of periods used in the panel data helps overcome problems such as endogeneity which arises when cross-sectional data are used. Both these studies had a study period of around 10 years whilst our study has a time frame of 18 years but with fewer funds being observed which we believe can help with endogeneity. Koke and Renneboog (2005) find that the use of lagged corporate governance variables has the potential to mitigate the endogeneity and unobservable heterogeneity. We also utilize lagged data for some corporate governance characteristics.

The data for female directors have been lagged since it is believed that their effects do not affect the performance in the same year. For instance, funds in the early years had a very small number of women on board. In the year 2000, there were only 24 women in 124

investment trusts; by 2017 there were 153 female directors. It can be argued that when women join the board the effect of their monitoring is not reflected in the performance for that same year. Terjesen (2015) utilizes a lagged percentage of female directors but does not specify the lagged period. In this chapter, we utilize female directors lagged by 2 years.

Two-stage least squares (2SLS)

Studies conducted by Sarpal (2018), Bhagat and Bolton (2019), and Lahouel et al. (2019) have highlighted that the study of corporate governance and performance can be riddled with the problem of endogeneity. Schultz et al. (2010) argue that the presence of at least one source of endogeneity will cause biased estimates. Therefore, we aim to address this problem by utilizing the Two-stage least squares (2SLS) estimation. Before we proceed with this method, we need to first find the appropriate instrument to be used, which would correlate with an explanatory variable but no effect on the dependent variable. In this study, we examine the effect of corporate governance characteristics on the performance of investment trusts. We will focus on remuneration. We will also introduce two additional variables, z which will be the instrument.

Instruments (Nationality and occupation)

In this case, we choose nationality³² as the instrument and propose that this variable will have an impact on the remuneration of the directors but will not have any effect on the performance measures themselves. El-Bassiouny and El-Bassiouny (2019) focus on the effect of board diversity and CSR reporting. They measured diversity by the percentage of foreign directors on the board. Their sample was based on US and German companies. They found that there was no significant effect on the CSR reporting and foreign directors. Zaid et al. (2020) also found insignificant results between the nationality of directors and corporate sustainability performance.

Staples (2007) found that firms have identified that directors with diverse nationalities can bring a more global outlook on the board, due to their varied norms acquired from their country of origin, and therefore this enables a boost in human capital. Heavey and Simsek (2013) add that nationality diversity leads to knowledge-based diversity, which is likely to stimulate effective and constructive debates, which is important especially for investment trusts experiencing dynamic changes and dealing with innovative financial products.

The investment trusts in this sample have various focuses. Besides investment in UK assets, funds such as The European Investment Trust and Henderson European Focus Trust focus on European stocks, therefore the presence of directors from different parts of Europe can incorporate the international knowledge and could positively affect decision making. The directors of the board for these funds have various nationalities across Europe - Germany, France, Switzerland, and others. The sample also showed that most funds focusing on Europe have a diverse board with various nationalities. However the same is not significant for funds focusing on other sectors.

Vafeas (2003) find that the quality of a board does not rely only on their independence, the expertise of the directors can also enhance their monitoring duties. It can be argued that the longer the experience of the directors the more expertise and knowledge they can accumulate, which will be helpful when they oversee the investment trusts. We consider

³² We have also considered other instruments such as tenure but it was a weak instrument thus it was disregarded.

the occupation of the board members as it can be assumed that their occupation will derive the amount of knowledge they can amass over time. In this sample, some of the directors include academics, economists, and bankers. We calculate the portion of directors with directorship expertise or being a finance director as their occupation. This variable does not have any correlation with performance measures. However, it can be argued that directors would be remunerated better for having more experience, which would then impact performance. Thus, we utilize occupation as another instrument.

3.5 Descriptive statistics and correlation matrix

3.5.1 Descriptive statistics

Table 12 shows the descriptive statistics for all variables. Although the results for ROA and ROE are relatively close, these two ratios serve a different purpose; ROA showcases the success of managers utilizing the asset of the fund to generate a profit, while ROE determines the amount of profit generated from the shareholder's equity.

Table 12 Summary statistics of the performance measures (ROA & ROE), corporate governance characteristics, dummy variables, and control variables

Variables	Observation	Mean	Standard deviation	Minimum	Maximum
ROA	2,214	0.05	0.22	-3.18	0.73
ROE	2,214	0.06	0.26	-3.27	0.90
NEDS	2,214	5.26	1.26	1.00	11.00

FEM_2	1,968	9.78	13.26	0.00	66.67
LNAGE	2,214	4.09	0.07	3.81	4.32
LNTEN	2,214	2.04	0.31	0.00	2.94
LNREM	2,214	11.45	0.54	9.47	14.71
SOWN	2,214	0.35	0.21	0.00	0.94
DOWN	2,214	0.02	0.08	0.00	0.68
AUD	2,214	0.19	0.40	0.00	1.00
SHARE	2,160	0.36	0.48	0.00	1.00
LNMCAP	2,214	23.37	1.36	16.67	26.98
FUGE	2,214	47.44	40.12	1.00	149.00
GEAR	2,214	0.14	0.16	0.00	1.70
DIV	2,214	0.10	13.36	-544.31	260.00

Performance

Blackrock Emerging Europe PLC (BEEP) had the lowest ROA of -3.18 in 2009 which was after the market had suffered one of the world's most dramatic crashes in the financial system. This was largely due to their substantial investment in emerging countries such as Russia, so when the Russian index declined considerably from 2400 to 500, this affected the fund's portfolio leading to them incurring a net loss of £210 million. They had also decided to change their management to Blackrock Investment Management in that year since the fund was also experiencing underperformance in the previous year as compared to their peers. This change could signify that the board of directors acts in the best interest of the shareholders. They have monitored and replaced underperforming management.

In the sample, several funds had negative ROAs most notably during the period of crises which were the dot-com crash and the financial crisis. In 2001 there were 84 funds out of 123 who had ROA between -2.10 and -0.0006. The highest number of funds with negative results was in 2002 with 95 funds; it was mostly the same funds that had negative ROAs in these two periods. During and after the global financial crisis of 2008, there were 89 funds (2008) and 62 funds (2009) with negative ROA. The highest results came from

Blackrock Latin American Investment Trust PLC (BRLA) with a ROA of -1.29 in 2008, where they made a loss of nearly £211 million in that year. Their underperformance was also linked with underperformance from their selection of stocks but also due to the introduction of gearing in the fund. The results from the ROE also show that negative ratios persist during the crises since the two ratios are based on the funds' net income. The same funds have both negative ROA and ROE.

NEDs

Table 12 shows the descriptive statistics for the corporate governance characteristics that are used to determine whether they affect performance in investment trusts. The first variable to be examined is the non-executive directors (NEDs), the sample is dominated by funds with boards made entirely of NEDs with some exceptions. Athelney Trust PLC had the (ATY) had the smallest number of NEDs on the board, between 2005-2009 there were 1 NED on a board of 3 members. On the other hand, both Foreign & Colonial Investment Trust (FRCL) and The European Investment Trust Plc (EUT) had a board of 11 members, all the directors were NEDs. British & American Investment Trust PLC (BAF) had a balanced board of 50-50 throughout 2004-2016, and Majedie Investment PLC (MAJE) had a board of both NEDs and executive directors throughout the 18 years.

Female directors

The struggle to eliminate gender disparity is still present. The number of female directors present on the board of the funds in the sample shows that boards need to start gender

diversifying more. In 2000, 84% of the funds had no female directors on the board. Over the years the number has reduced considerably. By 2017 there were only 20 funds which did not have any female directors such as Baillie Gifford Japan Trust PLC (BGFD) and Herald Investment Trust PLC (HRI). And yet, it is still rare to see more female directors on the board as opposed to men. Funds such as Blue Planet Investment Trust PLC (BLP) had 67% of female directors in 2012, where there were two female directors present out of 3 directors. Witan Pacific Investment Trust PLC (WPC) is the only fund to have 50-60% of female directors on the board for eight years in a row (2011-2017).

Age of directors

Although there is no maximum age limit for directors, our sample observes that 7 funds have an average age of 71 or more for the directors. Manchester & London Investment Trust PLC (MNL) has the highest average age of 75 in 2008; on the board, there were 3 directors aged between 74-77. The Investment Company PLC (INV) even had one director aged 80 on its board in 2010 while North Atlantic Smaller Companies Investment Trust PLC (NAIT) had four directors over the age of 70 in 2017. It is essential to analyze these older directors since the literature above has discussed how aging may hinder the monitoring capabilities of the directors. The majority of the directors in the sample are aged between 51-60 (1214); while there is the least number of directors aged between 40-50 (27).

Tenure of directors

In 2016, the fund British & American Investment Trusts PLC (BAF) had the highest tenure with 19 years; this is affiliated with the long-term employment of two directors who have been with the fund for over 20 years. The average tenure in the sample is 8 years, whilst in the UK a director must serve on a board for nine years. If the fund does not comply, they have to explain that the independence of the director has not been compromised (Gibbon et al., 2018). This helps us to understand the long tenure present in the sample; it can also be an indication that there is no conflict over the NEDS's ability to exercise an independent judgment, which is why they can stay with the fund for a long time.

Directors' ownership

The total directors' ownership varies between 0 to 0.68. However the majority of the ownership is less than 1% which is insignificant, and only one fund did not have any ownership for directors at all. New Star Investment Trust PLC (NSI) is the only fund that has high directors' ownership (0.4-0.65) for all 18 years. The Investment Company PLC (INV) has the highest ownership with 67.85%, whereby a director, Miss Webb, possessed 1,768,765 shares (0.63) which were held by a company, New Centurion Trust Limited. It is worth noting that Miss Webb owns 50% of the New Centurion Trust. Overall, the directors in the funds have minimal shares which may imply that they do not have an incentive to make the fund perform well, this can be further analyzed by looking at the regression results.

Substantial ownership

Substantial ownership refers to any shareholder owning 3% or more in the fund. These usually are other funds and companies. Substantial ownership in the sample ranges from 0 to 0.9374. The funds without substantial ownership are scattered throughout the years, and there is no particular year where it is more prevalent. Also, it varied across funds of different ages, for instance, Schroder Income Growth Fund PLC (SCF) and Scottish American Investment Company PLC (SCAM) both did not have any substantial interest in 2000. The highest ownership was 0.94 at Artemis Alpha Trust PLC (ATS); where the majority shareholders included a director, Mr. T S Hickman with 17.53% and a trust with 17.10%.

Remuneration

Alliance Trust (ATST) pays its directors the highest remuneration in the whole sample. In 2012 the total remuneration was £2,458,000 out of which a salary and bonus of £1,098,284 were paid to the chief executive Katherine Garrett-Cox. For several years including 2008, the remuneration has been above £2 million for the fund. However, Ms. Garrett-Cox saw the end of her role as CEO at the fund after a substantial investor attempted to appoint three NEDs on the board. After the CEO and the chairman resisted the change their departure became inevitable. Furthermore, the high salary of these directors did raise some controversy. Their departure is allowing the fund to shrink its costs. The lowest remuneration was £12,931 and was paid by Athelney Trust PLC (ATY) in 2000; the sample further shows that the lowest remunerations have been occurring between 2000-2003 with salaries at £33,000 or below.

Market capitalization

Scottish Mortgage Investment Trust PLC (SMT) has the highest market capitalization due to its large number of ordinary shares outstanding. Before 2014, the fund had 28,434,176 shares; however, the shares were split at a one to five ratio which led to the fund having 1,421,730,880 shares. It is interesting to note that after the stock split, the fund started trading at a premium, whereas it had been previously trading at a discount in all the previous years. F&C Investment Trust PLC (FRCL) also has a quite high market capitalization. Although they have less than half of the outstanding shares that SMT has, their share price is valued at almost three times more. Blackrock Emerging Europe PLC (BEEP) had the lowest capitalization in 2006 as its shares were trading at £2.94 due to a stock split occurring in the fund.

Fund age

In the sample, there are funds with a wide range of inception years. Foreign & Colonial Investment Trust is the first investment trust to be created in 1868, therefore, the fund's age in 2017 was 149. There are 24 investment trusts that are aged 100 and above, for instance, Dunedin Income Growth (DIG) and Scottish American (SCAM) were both incepted in 1873. These funds have been able to survive financial crises, world wars, and revolutionary inventions. On the other hand, funds such as New Star Investment Trust PLC (NSI) were introduced in 2000, therefore it is evident that based on the fund's age some may be at the advantage due to not only their reputations but also connections that they have in the market.

Gearing

Generally, the use of the borrowed fund for investment is not common in funds unless specified otherwise in their prospectus. However, investment trusts can use gearing to have more capital to invest on behalf of the shareholders. Some investment trusts have a limit on the level of debt they are allowed to take, the higher the gearing ratio will indicate that the fund has more debt. The AIC has observed that there has been a fall in the level of gearing funds are taking, it was quite popular during the 2008 financial crisis, and although we could have expected a higher level of gearing during this period we find that it is the opposite. It is found that there are only 3 funds with a gearing level of 90% and above. The rest were below 50% within which 20 funds had minimal gearing of less than 1%.

Dividend payout

A negative dividend payout ratio was observed for several funds, indicating that the dividend was paid out despite suffering from a loss in that year. JP Morgan Mid Cap Investment Trust PL (JMF) has made an average loss of £39,214,600 in 10 out of 14 years. Mithras Investment Trust PLC (MTH) has the lowest payout ratio of -599 as it has an extremely low net income of -£2000, however it should also be noted that this is the only year where they made a loss. Since they have been paying dividends consecutively every year, they have decided to use the cash reserve to ensure this continuation. Furthermore, it is also observed that many funds did not pay any dividend, Allianz Technology Trust PLC (ATT) has not paid a dividend at all in these 18 years, and they state that their long-

term capital growth and investment objective does not permit them to distribute a dividend.

3.5.2 Correlation matrix

The pairwise correlation shown in Table 13 allows us to determine the direction and strength of the relationship between the corporate governance characteristics and the measures of performance in the sample. It has also helped to determine whether our sample is marred with multicollinearity. It has been observed that since the data does not have any highly correlated variables which could potentially affect the regression results, we can assume there is no multicollinearity.

Although there are significant correlations between both performance measures and corporate governance characteristics such as female directors, age, and tenure; the results are weak. Although there is a high correlation between ROA and ROE, both measures of performance were utilized in separate models. ROA is indicating whether the NEDs are overseeing the efficient use of the capital provided by the principals. Open-end funds such as unit trusts and OEICs and closed-end funds such as real estate investment trusts must distribute their profit as dividends. On the other hand, equity investment trusts which we utilize in this study can retain part of their profit, therefore ROE is used to help determine how the retained money is used.

One of the highest correlations from the correlation table shows that there is a strong and positive relationship between the size of the fund and the remuneration of the directors (0.6023). This finding is in alignment with findings from Baumol (1959) and Conyon (1997). Larger funds can employ better and more qualified directors and pay a larger remuneration as they have the capital, also to ensure that they are carrying out better monitoring. Remuneration also has a positive relationship (0.4383) with the NEDs, which

naturally indicates that when more directors are sitting on the board higher remuneration is paid to them.

We observe some significant relationships between female directors and corporate governance mechanisms such as tenure (-0.1226) and remuneration (0.2987). It can be argued that the presence of female directors on the board help reduce the lengthy tenure of the directors. We proposed a negative relationship between performance and tenure as it is expected as per the agency theory that longer tenure will lead to entrenchment of the directors. Furthermore, the relationship between remuneration and female directors is observed to be positive; which can indicate that the female directors may be adding value to the board thus earning higher remuneration.

There is a significant and negative relationship between NEDs and director's ownership (-0.2373). Mura (2006) reported that the ownership of NEDs was typically lower than those of the executive directors and since the board in investment trusts is dominated by NEDs we observe low ownership. We observe a positive relationship between age and tenure (0.3101) which indicates that as the tenure of the directors increases within the investment trusts, their age is also increased. We can link this relationship with the positive relationship between age and director's ownership (0.1393) whereby when the directors spend more time in the fund they can accumulate more share ownership.

Although there is a weak relationship for audit tenure, there is a significant and positive relationship with the inclusion of female directors (0.2169) which indicates that the tenure of auditors is prolonged when there are more women present in the funds. We can argue that this is not favorable for the fund as the long tenure of the auditors can lead to a close relationship with management and thus it can impact their oversight. We also observe a positive relationship between audit tenure and remuneration (0.2113), this could indicate that the auditors with a long tenure may not be actively monitoring the funds and allowing for large remuneration to be paid to the directors.

Table 13 The Pearson correlation matrix for the variables with ROA and ROE

	VIF	ROA	ROE	NEDS	FEM_2	AGE	TEN	REM	SOWN	DOWN	AUD	SHARE	MCAP	FUGE	GEAR	DIV
ROA		1														
ROE		0.9901*	1													
NEDS	1.42	0.0159	0.0188	1												
FEM_2	1.17	0.0813*	0.0782*	0.0296	1											
AGE	1.21	0.0629*	0.0582*	-0.0311	0.0052	1										
TEN	1.18	0.0636*	0.0615*	-0.0772*	-0.1226*	0.3101*	1									
REM	2.00	0.0708*	0.0723*	0.4383*	0.2987*	0.0979*	-0.0237	1								
SOWN	1.07	0.0349	0.0302	-0.0932*	-0.0034	0.0427*	0.0810*	-0.0823*	1							
DOWN	1.18	-0.0111	-0.0121	-0.2373*	-0.0671*	0.1393*	0.0893*	-0.1980*	0.0647*	1						
AUD	1.07	0.0224	0.0204	0.0122	0.2169*	0.0272	0.0219	0.2113*	-0.0397	-0.0116	1					
SHARE	1.01	-0.0668*	-0.0669*	-0.0201	-0.0505*	0.0502*	0.0384	0.038	-0.018	-0.0052	0.0647*	1				
MCAP	2.21	0.1369*	0.1389*	0.4272*	0.2062*	0.1152*	-0.1104*	0.6023*	-0.1986*	-0.2900*	0.1085*	0.0014	1			
FUGE	1.40	0.0145	0.0169	0.1119*	0.1715*	-0.0530*	-0.0647*	0.3970*	-0.1606*	-0.0642*	0.0838*	0.0291	0.4528*	1		
GEAR	1.12	-0.1389*	-0.1518*	-0.0899*	0.021	-0.0874*	-0.1108*	-0.1679*	-0.0915*	-0.0317	0.0071	-0.015	-0.1303*	0.0266	1	
DIV	1.00	0.004	0.0042	-0.0067	0.0071	0.0232	0.0036	-0.0022	0.0151	-0.0017	0.0145	0.0035	0.0094	0.0055	0.0028	1
Mean VIF	1.29															

Note: Results are based on 123 UK investment trusts between the periods of 2000-2017. The test is statistically significant at 5%, a star

(*) appear next to the correlation coefficient. * p < 0.05, ** p < 0.01, *** p < 0.001

3.6 Results and analysis

In this section, we present and analyze the results obtained through the regression results and discuss the link between corporate governance and the performance of investment trusts through the agency theory lens. Table 14 and Table 15 shows the regression results, where the corporate governance characteristics, control variables, and dummy variables were utilized to assess their effect on two performance measures which are ROA and ROE from 2000 to 2017. Since we detected endogeneity to be present in the data (Table 11, pg. 126), we employ 2SLS to carry out the regression as shown by Models 3 and 5. Model 2 shows the first stage regression when nationality is used as an instrument whilst Model 5 shows the first stage regression when nationality and occupation are used as instruments. Lastly, Model 1 shows the result from an OLS regression,

The null hypothesis of Kleibergen-Paap rk LM statistic states that there is under-identification. If there is a case of under-identification, the P-value will not be significant (Baum et al., 2007; Jiraporn et al., 2014). Since the P-value in our result is significant, we can reject the null hypothesis and there is no problem of under-identification. To check whether the instruments have any explanatory power, we focus on the weak instrument test—where we compare the value between the Cragg-Donald Wald F statistic and Stock-Yogo weak ID test critical values. It is noted that if the critical values are less than the F statistics then the instruments are not weak.

When the P-value is significant it means that the instruments are not valid, Roodman (2007) also mentioned that when the Hansen J statistic for overidentification produces a value of 0; it can be due to the use of one regressor and one instrument, which is nationality. Since this test produced unclear results due to the scarcity of instruments, we included another instrument which is occupation. It has been observed that occupation also did not have an impact on performance thus it was also used. When the two instruments are used, the Hansen J statistic provides a P-value of 0.19 which is insignificant. Thus, it can be determined that one or both instruments are good and valid.

Table 14 Regression with fund and year fixed effect using ROA

	(1)	(2)	(3)	(4)	(5)
	OLS	2SLS	2SLS	2SLS	2SLS
		1st stage		1st stage	
NEDS	0.0130 (0.0102)		0.106* (0.0642)		0.112* (0.0611)
FEM_2	0.000810* (0.000491)		0.00219* (0.00123)		0.00230* (0.00122)
LNAGE	0.272** (0.112)		0.787** (0.397)		0.821** (0.382)
LNTEN	-0.0112 (0.0218)		-0.122 (0.0789)		-0.130* (0.0761)
LNREM	-0.174*** (0.0482)		-1.063* (0.590)		-1.122** (0.560)
SOWN	0.0770* (0.0402)		0.160** (0.0786)		0.166** (0.0759)
DOWN	-0.0491 (0.129)		-0.389 (0.335)		-0.417 (0.340)
AUD	-0.0250** (0.0125)		-6.70e-05 (0.000748)		-0.0104 (0.0188)
SHARE	-0.00895 (0.00929)		0.000838 (0.0142)		0.00158 (0.0144)
NAT		0.0251** (0.0122)		0.0134 (0.0114)	
OCC				0.0454*** (0.00519)	
LNMCAP	0.0965*** (0.0313)	0.114*** (0.0129)	0.163*** (0.0602)	0.0984*** (0.0122)	0.168*** (0.0581)
FUGE	0.0191*** (0.00232)	0.0434*** (0.00215)	0.0547** (0.0231)	0.0456*** (0.00212)	0.0807*** (0.0270)
GEAR	-0.0882** (0.0399)	0.0234 (0.0391)	-0.0593 (0.0574)	0.0306 (0.0396)	-0.0582 (0.0582)
DIV	0.000383*** (0.000146)	9.48e-06 (0.000250)	0.000538* (0.000313)	8.22e-05 (0.000264)	0.000554* (0.000323)
Constant	-1.638** (0.682)	8.119*** (0.294)	3.976 (3.499)	8.320*** (0.274)	3.809 (3.819)
Observations	1,920	2,214	1,920	2,214	1,920
R-squared	0.372	0.883	0.9223	0.888	0.9224
Fund FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
F statistics		119.83	4.17	126.71	4.00
			0.00		0.00
Kleibergen-Paap rk LM statistic			5.91		7.37
			0.02		0.03

Cragg-Donald Wald F

statistic

13.73

7.58

Hansen J statistic

0.00

0.19

Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. The variables used are as follows: ROA = return on assets - it has been scaled down by 100, NED = non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout. Kleibergen-Paap rk LM statistic is for the under-identification test, Cragg-Donald Wald F statistic is for weak instrument test and Hansen J is for the overidentification test.

Table 15 Regression with fund and year fixed effect using ROE

	(1) OLS	(2) 2SLS First stage	(3) 2SLS	(4) 2SLS First stage	(5) 2SLS
NEDS	0.0124 (0.0109)		0.115* (0.0675)		0.123* (0.0650)
FEM_2	0.000940 (0.000631)		0.00249* (0.00136)		0.00260* (0.00137)
LNAGE	0.298** (0.130)		0.871** (0.420)		0.913** (0.412)
LNTEN	-0.0115 (0.0257)		-0.136 (0.0852)		-0.144* (0.0829)
LNREM	-0.197*** (0.0506)		-1.186* (0.623)		-1.257** (0.598)
SOWN	0.0845* (0.0450)		0.177** (0.0834)		0.184** (0.0817)
DOWN	-0.0266 (0.171)		-0.410 (0.382)		-0.438 (0.385)
AUD	-0.0315** (0.0150)		-0.0163 (0.0208)		-0.0152 (0.0212)
SHARE	-0.00931 (0.0108)		0.00168 (0.0159)		0.00247 (0.0162)
NAT		0.0251** (0.0122)		0.0134 (0.0114)	
OCC				0.0454*** (0.00519)	
LNMCAP	0.113*** (0.0329)	0.114*** (0.0129)	0.187*** (0.0624)	0.0984*** (0.0122)	0.192*** (0.0608)
FUGE	0.0205*** (0.00270)	0.0434*** (0.00215)	0.0831*** (0.0292)	0.0456*** (0.00212)	0.0837*** (0.0305)
GEAR	-0.166** (0.0672)	0.0234 (0.0391)	-0.134* (0.0760)	0.0306 (0.0396)	-0.132* (0.0770)
DIV	0.000457**	9.48e-06	0.000635*	8.22e-05	0.000648*

	(0.000194)	(0.000250)	(0.000371)	(0.000264)	(0.000381)
Constant	-1.864**	8.119***	3.857	8.320***	4.361
	(0.768)	(0.294)	(4.310)	(0.274)	(4.152)
Observations	1,920	2,214	1,920	2,214	1,920
R-squared	0.373	0.883	0.024	0.888	
Fund FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
F statistics		119.83	4.18	126.71	3.97
			0.00		0.00
Kleibergen-Paap rk LM statistic			5.905		7.37
			0.0151		0.03
Cragg-Donald Wald F statistic			13.734		7.76
Hansen J statistic			0.00		0.29

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: ROE = return on equity - it has been scaled down by 100, NEDS = non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout. Kleibergen-Paap rk LM statistic is for the under-identification test, Cragg-Donald Wald F statistic is for weak instrument test and Hansen J is for the overidentification test.

NEDs

We hypothesized that the presence of more NEDs on the board will lead to better performance because an independent director acts on behalf of the shareholder rather than their interest thus supporting the agency theory (Raheja, 2005). Our results support the hypothesis, there is a positive and significant relationship between NEDs and ROA ($\beta = 0.112$, $p < 0.05$) as shown by Table 14 column 5. Most of the boards in the sample are comprised mainly of NEDs and their main role is the monitoring of the investment team. Furthermore, there has been an increasing number of NEDs coming from outside, with no ties to investment trusts or the fund management thus limiting conflict of interest. We make a similar observation when ROE is used ($\beta = 0.123$, $p < 0.05$) in Table 15 column 5.

Tulung and Ramdani (2018) and Kao et al. (2019) also utilize ROA and ROE as measures of performance and found that the presence of a higher proportion of outside directors has a positive impact on the firm. The main role of the NEDs in investment trusts is to execute a supervisory role that helps mitigate agency problems. Similar to this study, Yekini et al. (2015) employs a panel data set of UK companies and also conclude that the presence of NEDs enhances the disclosure of information which in turn improves performance. It can be assumed that some NEDs may develop specialized knowledge from previous experience as directors which can lead to having a better understanding of the investment trusts and performance.

Female directors

There is a positive and significant relationship between female directors and ROA ($\beta = 0.00230$, $p < 0.05$) as shown by Table 14 column 5. We hypothesized that more female

directors will be beneficial to the fund as it is assumed that those directors tackle problems from a different perspective. This finding implies that the inclusion of one more female director on the board two years ago will increase the current performance by 0.23%. The same observation was found when ROE was used ($\beta = 0.00260$, $p < 0.05$) as shown by Table 15 column 5. Our findings align with Smith et al. (2006), they also link female directors with better performance as they believe that there is a better quality of monitoring and creativity in decision making. Furthermore, the presence of women on the board helps with the image of the firm which can potentially attract more investors. Post and Byron (2015) and Ararat and Yurtoglu (2021) also detect a positive relationship between the presence of female directors and firm profitability.

A board of directors can be considered diverse based on many premises and gender is a factor to consider. Terjesen et al. (2009) argue that the calmer nature of women allows for the behavior within the boardroom to change and have a different approach when seeking resources from outside parties. Ferreira (2010) also adds that the inclusion and promotion of women in the boardroom allow corporations to gain from social benefits, therefore it can have a positive impact on the firm's image which could potentially help attain better resources in the form of capital.

Age of directors

We proposed that the presence of older directors would hinder performance enhancement, due to the reduction in their cognitive skills and also the motivation to carry out certain duties. However, the results have shown the contrary, where we observe a significant and positive relationship with both ROA ($\beta = 0.821$, $p < 0.01$) and ROE ($\beta = 0.913$, $p < 0.01$) as shown by column 5 from Table 14 and 15 respectively. This finding can be explained by Xu et al. (2018) argument that older directors have more at stake as compared to younger directors thus they would be less prone to commit corporate fraud.

We can argue that instead, the older directors would dedicate their time to properly monitor the investment managers to prevent sullyng their distinguished careers. Chen and Zhang (2021) confirm that the presence of rookie independent directors increases the likelihood of corporate fraud, which leads to the deteriorating performance of the firms. This finding is aligned with our result.

It can also be argued that older directors may experience an increase in their directorship over the years which enables them to acquire more skills and can perform their monitoring duties better. Field et al. (2013) find that multiple directorships have a positive impact on corporate value. The results for age corroborate the positive and significant relationship between age and firm performance that is detected by Kagzi and Guha (2018). The positive impact on ROA could be attributed to aging directors having a better understanding of the funds' investment strategy. Over time, they've developed experience that allowed them to intervene when the investment manager is making investment decisions.

Tenure of directors

The relationship between the tenure of the directors in the investment trusts and performance is negative and significant in Model 5 (Table 14 & 15, column 5) for both ROA ($\beta = -0.130, p < 0.05$) and ROE ($\beta = -0.144, p < 0.05$) respectively, implying that boards with longer tenure will perform worse. This finding is consistent with those of Niu and Berberich (2015), who found that agency problems emerged when board members had numerous directorships and had been on the board for a long time. The board of directors in our sample is primarily made up of NEDs who frequently hold many directorships. The deteriorating performance when tenure increases highlight potential agency issues where directors over the years may have become less keen on keeping the maximization of shareholders' value as a central objective.

Hou et al. (2014) also confirm our discussion of the findings; they reported that as the tenure of a CEO in a US firm increased so did the salary. However, the non-performance-based bonus did not increase. This revealed that CEOs were less concerned with increasing the firm's value, which would have resulted in bigger incentives in the form of bonuses. We concentrated on director's ownership rather than a bonus in this study, and we found that it remained relatively low over time. This suggests that only a small portion of the director's capital is invested in the funds, which could explain the lack of attention paid to the investment team.

Remuneration

In this study we observe a significant and negative relationship between remuneration and ROA of the investment trusts ($\beta = -1.122$, $p < 0.01$) as shown by Table 14 column 5, highlighting the increase of remuneration of the NEDs on the board leads to a decrease in performance. We also make a similar observation when ROE is used ($\beta = -1.257$, $p < 0.01$) from Table 15 column 5. Our finding is similar to Alshimmiri (2004) as the latter observed a negative relationship between cash remuneration and performance of actively traded REITs. It can be observed that the remuneration payout to the directors has a direct impact on the profit of the fund thus diminishing the potential payout of dividends for the investors.

Substantial ownership

There is a positive and significant relationship between ROA and ownership ($\beta = 0.166$, $p < 0.01$) as shown by Table 14 column 5. These findings are aligned with the proposed hypothesis and also with Demsetz and Lehn (1985), the presence of shareholders with substantial ownership is more likely to reinforce monitoring and help in the mitigation of agency problems. McCahery et al. (2016) found that large investors such as asset managers and mutual funds tend to liquidate their holdings when they become unsatisfied with performance, our results could be explained using their reasoning. These large investors such as pension funds usually bear the monitoring costs to ensure that managers are investing in alignment with their strategy. There is a similar finding when ROE is used, performance is increased by 18.4% as shown by Table 15 column 5.

Sakawa and Watanabel (2020) also confirm that firm value is improved in the presence of institutional investors under the agency theory. We argue that these investors play an active role in reducing information asymmetry between the agents and the principal by demanding more transparency with regard to investment decisions as they have a larger stake at risk. In some cases, these shareholders, who sometimes are the directors of the funds, are motivated to enhance the performance by narrowing the gap between share price and NAV. During 2000 Artemis Alpha Trust PLC had total substantial ownership of 93.74% whereas two of their NEDs had total ownership of 10.73%.

Market capitalization

Market capitalization has a positive and significant relationship with ROA ($\beta = 0.168$, $p < 0.001$) and ROE ($\beta = 0.192$, $p < 0.001$) as shown in column 5 from Tables 14 and 15 respectively. When the size of investment trusts increases performance is also better. In the context of funds our finding is like Chong et al. (2017) and Chong et al. (2018), these studies have focused on Asian REITs and detected a positive relationship between the size of the funds and ROE. When the fund size increases more investors are pooling

their money which leads to greater availability of capital for investment managers to utilize to generate more return. It can also be argued that larger funds have a greater ability to attract well-performing high skilled directors as they can provide suitable compensation for them, which in turn would lead to higher and better performance. Furthermore, investors are also driven to invest in funds that hold skilled managers. Their increased investments help boost the share price which leads to higher market capitalization.

Fund age

The results show a positive and significant relationship between age and ROA ($\beta = 0.0807$, $p < 0.001$) as shown by Table 14 column 5, which is compatible with the proposed hypothesis. We observe the same relationship when ROE is used ($\beta = 0.0837$, $p < 0.001$) as shown in Table 15 column 5 . Moore (2016) also finds a positive relationship between risk-adjusted performance and age when observing large-cap mutual funds. This can also be linked with market capitalization whereby as the funds get older, they accumulate more capital and their experience also allow investment managers to be cautious of markets to avoid or the weight of investment they decide to allocate in certain volatile markets. As suggested by Chen (2001) these older funds are more efficient in investment due to the effect of the learning curve whilst Randoy and Goel (2001) attribute accumulated goodwill to better performance. Older funds such as Foreign and Colonial have made a mark since their inception and investors are willing to invest with them as their survival for all these years speaks louder than their performance.

Gearing

Unlike other types of investment funds, investment trusts can utilize gearing to enhance the shareholders' returns with the use of more capital. However, it was hypothesized that the use of more gearing will lead to poor performance since gearing comes with risks. ROE was negatively affected when gearing is increased ($\beta = -0.132$, $p < 0.05$) as shown by Table 15 column 5. It can be argued that although gearing can potentially enhance performance, it can be done through an optimal debt level; beyond the optimal level would adversely affect the funds. Gearing will be explored further in the subsequent chapter, as it has been linked with the discount anomaly. Whilst Conyon and He (2017) detected a negative relationship between ROA and leverage when investigating US firms, we do not find any significant finding when ROA is used.

Dividend payout

The results indicate a positive and significant relationship between dividend payout and ROA ($\beta = 0.000554$, $p < 0.05$) as shown by Table 14 column 5. When dividend payout is increased it leads to better performance as it sends a positive signal to investors in the market. Floyd et al. (2015) finds that the number of dividend-paying firms in 2012 had increased by 28.1%. This indicates that dividend payout is increasingly more prevalent amongst firms as it prevents managers from holding a large amount of cash, which is consistent with the agency theory (La Porta et al., 2000)³³. The payment of dividends will affect the equity on the balance sheet which will then affect the ROE, this is observed by the positive relationship between ROE and dividend payout ($\beta = 0.000648$, $p < 0.05$) as shown by Table 15 column 5.

³³ <https://onlinelibrary.wiley.com/doi/10.1111/0022-1082.00199>

3.7 Robustness tests

Keele (2008) states that “*Statistical models are always implications, and even the most complicated model will be a pale imitation of reality*”. In this section we consider several alternative specifications to test the robustness of our findings and to increase the validity of our conclusion; with the expectation that the findings will be corroborative. The robustness tests have been carried out using the OLS method.

3.7.1 Performance around the 2008 financial crisis

The period of this study encompasses the financial crisis which allows us to further analyze whether corporate governance played a role during those tumultuous times. It is important to zoom in on the financial crisis because weaknesses in corporate governance have been associated with the crisis, especially high remuneration packages. In 2009 a director was earning on average 81 times more than an average full-time worker. The policy for corporate governance had to be reviewed by major players in the financial system such as the FCA, FRC, Bank of England, and supranational organizations such as OECD, IMF, and World Bank. Their intervention in this matter highlighted the significance of maintaining a system with good governance.

Prior studies by Curado et al. (2014) and Nikkinen and Rothovius consider the period between 2008-2009 when they study the financial crisis. Following Greenbaum et al. (2015) and Belghitar et. al. (2017), we will employ the time frame to study the effect of the crisis between 2007 to 2009 as it allows us to capture the start of the crisis in mid-2007. Table 16 shows the results from the regression, the pre-crisis encompasses 2000 to

2006 and the post-crisis will include 2010 to 2017. These time frames were selected based on the sample period.

Table 16 Regression with fund and year fixed effect ROA and ROE around the financial crisis

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	OLS	OLS
	ROA	ROE	ROA	ROE	ROA	ROE
	2000-2006	2000-2006	2007-2009	2007-2009	2010-2017	2010-2017
NEDS	-0.0101 (0.0125)	-0.0114 (0.0149)	0.0554* (0.0311)	0.0631* (0.0356)	-0.00505 (0.00564)	-0.00735 (0.00622)
FEM_2	0.00166 (0.00182)	0.00201 (0.00208)	0.000186 (0.00516)	0.00254 (0.00659)	-0.000405 (0.000452)	-0.000355 (0.000519)
LNAGE	0.628* (0.346)	0.470 (0.427)	2.257** (0.947)	2.580** (1.092)	-0.0706 (0.139)	-0.106 (0.153)
LNTEN	-0.0432 (0.0614)	-0.0463 (0.0706)	-0.174 (0.160)	-0.200 (0.186)	0.0177 (0.0217)	0.0260 (0.0243)
LNREM	-0.135** (0.0576)	-0.187*** (0.0682)	-0.367* (0.217)	-0.367 (0.249)	-0.0911*** (0.0319)	-0.104*** (0.0346)
SOWN	0.0258 (0.0956)	0.0188 (0.114)	-0.0386 (0.233)	-0.0923 (0.267)	0.00196 (0.0482)	0.00435 (0.0519)
DOWN	0.198 (0.257)	0.386 (0.409)	0.0934 (0.713)	-1.084 (0.930)	0.604*** (0.116)	0.823*** (0.194)
AUD	-0.0224 (0.0357)	-0.0436 (0.0438)	-0.115** (0.0580)	-0.144** (0.0708)	0.00320 (0.0148)	0.00251 (0.0164)
SHARES	-0.0119 (0.0207)	-0.0116 (0.0248)	-0.0264 (0.0356)	-0.0280 (0.0412)	-0.0184** (0.00937)	-0.0201* (0.0105)
LNMCAP	0.127*** (0.0295)	0.147*** (0.0364)	0.550*** (0.0592)	0.618*** (0.0693)	0.0734*** (0.0257)	0.0857*** (0.0294)
FUGE	0.0639*** (0.00803)	0.0748*** (0.00954)	0.0387* (0.0204)	0.0407* (0.0237)	-0.00746** (0.00341)	-0.00944** (0.00385)
GEAR	-0.0541 (0.0832)	-0.112 (0.126)	-0.165 (0.143)	-0.610*** (0.215)	-0.0694* (0.0403)	-0.0555 (0.0548)
DIV	0.000528*** (0.000175)	0.000802*** (0.000279)	0.0120 (0.00904)	0.0154 (0.0104)	-0.000361** (0.000140)	-0.000500*** (0.000164)
Constant	-4.240*** (1.453)	-3.541** (1.794)	-17.82*** (4.005)	-20.66*** (4.666)	-0.0279 (0.894)	0.0212 (0.987)
Observations	600	600	360	360	960	960
R-squared	0.532	0.522	0.705	0.707	0.352	0.359
Fund FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. The variables used are as follows: ROA = return on assets - it has been scaled down by 100, ROE = return on equity - it has been scaled down by 100, NEDS = non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

NEDs

We observe a positive and significant relationship between performance and NEDs only during the financial crisis, Table 16 column 3 shows an increase of 5.54% in ROA when there are more NEDs on the board ($\beta = 0.0554$, $p < 0.05$). The same finding was detected for ROE during the financial crisis ($\beta = 0.0631$, $p < 0.05$) as shown by Table 16 column 4. These results corroborate with the findings detected in the main results (Table 14 and Table 15). The results for pre-crisis and post-crisis were not significant, which could indicate that during the financial crisis the NEDs had a more active role in overseeing the managers. Mintah and Schadewitz (2015) found that during the financial crisis firms such as Northern Rock and RBS in the UK, did not have an effective board. The lack of monitoring of certain activities in these firms amplified the impact of the crisis. Thus, we can argue that whilst the directors were not active prior to the crisis, during the crisis the directors were not tolerant towards poor performances.

Age of directors

There is a positive relationship between the age of the directors and ROA ($\beta = 2.257$, $p < 0.01$) as shown by Table 16 column 3, this shows that the presence of older during the financial crisis helped increase the performance. This observation is consistent when ROE is used as a measure of performance ($\beta = 2.580$, $p < 0.01$) which can be observed from Table 16 column 4. Fujianti (2018) argued that directors who possess more experience can develop a better understanding of a firm thus leading to more efficient

decision making. It can be argued that the experience of monitoring will be greater for older directors as they amass more knowledge over the years. Cheng et al. (2010) pointed out that older directors typically focus more on returns, this argument can help support our finding especially during the crisis. The results do not showcase any significant relationship between age and performance following the crisis, this can be partially explained by Ormazabal (2018) who documented that directors showed a tendency to resign post the financial crisis.

Remuneration

Our findings show a negative significant relationship between remuneration and ROA in all periods. The compensation of directors especially in the form of bonuses has always been criticized as their high payments are not always matched with good performance. The scrutiny was amplified during the financial crisis, as it was deemed by investors that the silence of NEDs on the matter was linked with higher remuneration of the latter, which led to the deterioration in the performance of the fund. Furthermore, many NEDs may argue that the skills that they bring to the board are valuable in helping that the right decisions are made. However, since NEDs are sometimes considered outsiders they might not be able to ask pertinent questions but still receive their remuneration. The lack of intervention from the NEDs does not add enough value to the fund.

The results show that although directors were rewarded handsomely previously, and still oversaw one of the biggest crashes since the Great Depression, they were continued to be paid quite a high remuneration after the crash to further incentivize their monitoring role. However, they could not simply enjoy the perks of big salaries without contributing to their role as they were scrutinized by investors, regulators, and other concerned bodies. It can also be argued that the damage caused by the crash was quite large. Therefore, even

after NEDs decided to better oversee the actions of the managers for their high salaries, it was not enough in the aftermath to improve performance.

Directors' ownership

It was hypothesized that there is a positive relationship between director's ownership and performance. The results confirm the hypothesis but only for the period after the crisis; we observe an increase in ROA ($\beta = 0.604$, $p < 0.001$) and ROE ($\beta = 0.823$, $p < 0.001$) as shown from Table 16 column 5 and 6 respectively. When the directors become the shareholders of the funds themselves, there is more inclination for them to monitor the investments made by the managers, as they can potentially earn a high return. However, the data shows that after the crisis the maximum director's ownership level drops to 59% whilst it was 67% before the crisis. It could be assumed that after the crisis the level of director's ownership decreases due to the retention of fewer directors and the ousting of poor performers.

Audit tenure

It has been observed from the main result that there was no significant with this dummy variable, however, we find that there is a negative and significant relationship between audit tenure and ROA during the crisis ($\beta = -0.115$, $p < 0.01$) as shown by column 3 from Table 16. During the crisis, auditors were being highly scrutinized for their

unqualified opinion despite some firms being in distress. Sikka (2009) provide examples of Bear Stearns and Lehman Brother. Both received the green light from the auditors on their account, but experienced financial issues just a few months afterward. Although the auditors are not responsible for the investment decisions in the investment trusts, it can be argued that providing better oversight of the managers can prohibit certain actions.

Shares repurchase

Our findings suggest that there is a negative and significant relationship between share repurchase and ROA ($\beta = -0.0184$, $p < 0.01$) after the crisis which can be observed from column 5 in Table 15. This could imply that after the tumultuous economic period the board of directors and managers were more inclined towards share repurchase which would have an impact on the share price. Generally, the share price deviates from the NAV in these finds. It can be assumed that during the crisis the deviation would have been larger, thus prompting several mechanisms to address large deviation and the use of share repurchase was insufficient to enhance ROA. In this sample deviation during the crisis was -12% whilst deviation reduced to -9% after the crisis. Thus we can infer that with a larger deviation, there was a need for more share repurchase which in turn has a positive impact on performance. Anolick et al. (2021) highlight that share repurchase help the firms distribute excess cash to their shareholders, whilst the purpose of this practice within investment trusts can serve as a tool for increasing share price.

Market capitalization

It can be seen that before, during, and after the crisis market capitalization and measures of performance have all been positive, which is indicative that when the fund expands there is more opportunity to make higher returns due to increased investments. Many investment trusts in the sample focused on emerging markets and the Asia Pacific which also includes some emerging markets and also smaller companies. Thus, investments made in volatile markets can affect their level of performance; the availability of a larger amount of capital and investment in risky markets helps to earn a larger return. Furthermore, it can also be added that the bigger the fund the more diversified they are. Therefore if returns from one market are affected it can be cushioned by the return from a less volatile market.

Fund age

We observe a positive and significant relationship between fund age and performance during all period of time. During the crisis, when the age of the investment trusts increased it led to an increase in ROA ($\beta = 0.0387$, $p < 0.05$) and ROE ($\beta = 0.0407$, $p < 0.05$) as shown by column 3 and 4 from Table 16. However, after the crisis, we can see a negative relationship. It can be argued that the change in performance can be due to the fall in value in the investments that were made. Since older firms made more investments, they also faced larger losses. Joseph et al. (2020) argue that the cash constraint from younger firms aided their performance before the financial crisis, as they were less able to make investments. It can be argued that older investment trusts such as Foreign and Colonial Investment Trust would have a larger cash balance compared to newer funds

such as New Star Investment Trust, it is reported that there was a difference of £35.7 million in their cash during May 2021.³⁴

Gearing

The use of gearing is beneficial when the market is going upwards. When the market starts falling it has a magnified effect on the loss and affects performance, especially during the crisis. The underlying assets of the funds and the debt level can affect the share price. The negative and significant relationship between performance and gearing during the crisis ($\beta = -0.610$, $p < 0.001$) and post ($\beta = -0.0694$, $p < 0.05$) the crisis support our hypothesis as shown by column 4 and 5 respectively from Table 16. Many fund managers decided to utilize high levels of gearing before the crisis as they believed the interest rates were cheap. However, after the financial crisis, the reduced rate of interest by the BOE had a massive impact on their profitability as their repayments were higher than the interest they were earning. The interest rate mid-2007 was 5.75% whilst at the end of May 2009 was 0.5% (Bank of England, 2018). It can be argued that the effect of potential loss in value for the investment during the crisis can be observed post-crisis with a negative ROA.

Dividend payout

³⁴ Source: Thomson Reuters Eikon, the cash on the balance sheet for Foreign and Colonial Investment Trust was £46.7 million whilst the value for New Star Investment Trust was £11 million

We observe a positive and significant relationship between ROA and dividend payout ($\beta = 0.000528$, $p < 0.001$) before the crisis (Table 16, column 1), this finding is aligned with the agency theory as it is believed that when managers are in control of less capital they are less likely to misuse these assets which could affect the return of the investors. Instead, that extra capital is paid out to the owners. We observe a similar finding when ROE is used ($\beta = 0.000802$, $p < 0.001$) as shown by Table 16 column 2. However, it is seen that being on par with the same ideology after the crisis is not a benefit for the funds as they experience as there is a negative relationship for both ROA ($\beta = -0.000361$, $p < 0.01$) and ROE ($\beta = -0.0005$, $p < 0.001$) as shown by column 5 and 6 from Table 16. Amid the financial crisis, only 18 funds did not pay any dividends. Despite the hard times, many trusts including the “dividend heroes”³⁵ paid a dividend to their shareholders. In some cases, this was made possible due to their revenue reserves, out of which dividend was paid out when not enough return was generated.

3.7.2 Exclusion of the financial crisis period (2007-2009)

Since the sample encompasses the period before, during, and after the financial crisis of 2008, this crisis event could potentially have harmed the investment trusts’ performance whereby the investment trusts could be experiencing poorer performance. During the crisis, the financial sector was affected greatly. The event highlighted the weaknesses in policies regarding corporate governance in financial firms (Zagorchev and Gao, 2015). It can also be argued that the investment managers would have a different pattern of behavior when investing during tumultuous times as they would be more risk-averse,

³⁵ Investment trusts that have paid dividend consecutively each year for 20 years or more, including Scottish American, Foreign & Colonial, Caledonia Investments and others

which would be affecting the discount. Furthermore, existing investments would also have been affected therefore affecting the NAV of the fund.

Table 17 shows the result from the exclusion of the period from 2007 to 2009. It indicates that without the influence of the crisis the results are similar to the main finding, especially for remuneration, market capitalization, and fund age. These results indicated that the effect of remuneration is similar whether there is an influence of the crisis when all periods are considered, or when the crisis is excluded.

Table 17 Regression with fund and year fixed effect using ROA and with the exclusion of the financial crisis period (2007-2009)

	(1) OLS ROA	(2) OLS ROE
NEDS	-0.00181 (0.00559)	-0.00351 (0.00650)
FEM_2	0.000676 (0.000444)	0.000850 (0.000536)
LNAGE	0.155 (0.100)	0.140 (0.118)
LNTEN	-0.00447 (0.0210)	-0.00154 (0.0240)
LNREM	-0.0943*** (0.0232)	-0.111*** (0.0269)
SOWN	0.0187 (0.0317)	0.0137 (0.0366)
DOWN	0.122 (0.113)	0.204 (0.157)
AUD	-0.0168 (0.0116)	-0.0200 (0.0137)
SHARES	-0.00973 (0.00843)	-0.00975 (0.00975)
LNMCAP	0.0382*** (0.0117)	0.0444*** (0.0130)
FUGE	0.0205*** (0.00203)	0.0231*** (0.00232)
GEAR	-0.0610 (0.0407)	-0.0668 (0.0598)
DIV	0.000215	0.000251

	(0.000176)	(0.000237)
Constant	-0.663	-0.591
	(0.500)	(0.579)
Observations	1,560	1,560
R-squared	0.395	0.391
Fund FE	YES	YES
Year FE	YES	YES

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: ROA = return on assets - it has been scaled down by 100, ROE = return on equity - it has been scaled down by 100, NEDS = non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

3.7.3 Quantile regression

The quantile regression allows us to model the relationship between the effects of corporate governance characteristics on performance at specific quantiles of the response variable. This study estimates the coefficients at three quantiles, namely 25th, 50th, and 75th. The independent variables related to corporate governance mechanisms, control variables, and dummy variables will remain the same. Prior studies by Kuan et al. (2012), Chi et al. (2015), and Dang et al. (2018) have also explored corporate governance using quantile regression.

Table 18 Regression with fund and year fixed effect using ROA and ROE measures at three different quantiles

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	OLS	OLS
	ROA	ROE	ROA	ROE	ROA	ROE
	0.25	0.25	0.5	0.5	0.75	0.75
NEDS	-0.0107 (0.00756)	-0.00348 (0.00331)	-0.000230 (0.00386)	-0.00710 (0.00849)	-0.00394 (0.00387)	-6.50e-05 (0.00450)
FEM_2	0.000925 (0.000641)	0.000449 (0.000281)	0.000648** (0.000328)	0.00110 (0.000720)	0.000529 (0.000329)	0.000730* (0.000382)
LNAGE	0.0836 (0.127)	-0.160*** (0.0555)	-0.0973 (0.0649)	0.122 (0.142)	-0.175*** (0.0650)	-0.111 (0.0756)
LNTEN	0.0640** (0.0283)	0.0268** (0.0124)	0.00711 (0.0145)	0.0740** (0.0318)	0.0351** (0.0145)	0.00283 (0.0169)
LNREM	0.00712 (0.0211)	-0.0254*** (0.00922)	-0.0193* (0.0108)	0.0108 (0.0237)	-0.0315*** (0.0108)	-0.0272** (0.0126)
SOWN	-0.0131 (0.0394)	0.0110 (0.0172)	0.0345* (0.0201)	-0.0186 (0.0442)	0.00614 (0.0202)	0.0292 (0.0235)
DOWN	0.0678 (0.106)	-0.0146 (0.0463)	-0.0342 (0.0541)	0.0585 (0.119)	-0.0530 (0.0542)	-0.0670 (0.0631)
AUD	0.0126 (0.0206)	-0.0141 (0.00900)	-0.00834 (0.0105)	0.0107 (0.0231)	-0.0140 (0.0105)	-0.0106 (0.0122)
SHARES	-0.0194 (0.0161)	-0.00858 (0.00703)	-0.00631 (0.00821)	-0.0235 (0.0180)	-0.00959 (0.00823)	-0.0107 (0.00957)
LNMCAP	0.0294*** (0.00846)	0.0220*** (0.00370)	0.0149*** (0.00433)	0.0277*** (0.00950)	0.0252*** (0.00434)	0.0171*** (0.00504)
FUGE	-0.000276 (0.000230)	-9.12e-05 (0.000101)	-0.000323*** (0.000118)	-0.000123 (0.000258)	-5.24e-05 (0.000118)	-0.000349** (0.000137)
GEAR	-0.215*** (0.0526)	-0.122*** (0.0230)	-0.123*** (0.0269)	-0.309*** (0.0590)	-0.0752*** (0.0269)	-0.0493 (0.0313)
DIV	-0.000123 (0.000553)	0.000161 (0.000242)	0.000305 (0.000283)	-0.000151 (0.000621)	0.000176 (0.000283)	0.000351 (0.000330)
Constant	-1.159** (0.512)	0.512** (0.224)	0.450* (0.262)	-1.355** (0.574)	0.559** (0.262)	0.566* (0.305)
Observations	1,920	1,920	1,920	1,920	1,920	1,920
Fund FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. The variables used are as follows: ROA = return on assets - it has been scaled down by 100, ROE = return on equity - it has been scaled down by 100, NED = non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

There is a positive and significant relationship between female directors and ROA ($\beta = 0.000648$, $p < 0.01$) as shown by column 3 from Table 18. This finding is supported by Eagy and Carli (2003) and Chou et al. (2013), who added that women have a better grip

at improving the attendance of meetings especially for the committee which contributes to proper governance and performance enhancement. We observe this finding in the third quartile, which indicates the firms with better performance. It can be argued that female directors can exercise more democratic and collaborative leadership which can help tackle certain decisions better.

As compared to the main finding, there is some significant relationship between tenure and performance in various quantiles, it is shown that when tenure increases, performance is enhanced with conflicts with the proposed hypothesis. It is anticipated that longer tenure could translate into entrenched directors. However, the positive finding could be linked with the notion that the directors learn the skills to improve their monitoring as time passes. The exploration of age across the 25th and 75th quantile project showed a negative relationship between the director's age and performance; this result showcased an opposite pattern as the main result. It can be argued that the market may negatively perceive older directors for not possessing enough experience. This could discourage investors from investing in investment trusts, which could directly affect the ROA.

3.8 Conclusion

The persistent debate of corporate governance in the financial system, as well as other areas, has given rise to this study. The increased complexities of businesses and the emergence of innovation have propelled the importance of the right governance. It is evident that corporate governance played a major but not sole role in the crumbling of many financial institutions in 2008, the lack of transparency and monitoring, along with the potential lack of shareholder activism, led to the falling market. The topic of governance can be thought through more than a singular manner, but we tackle the matter from an agency perspective as it is deemed to be appropriate for the type of investment fund we are focusing on.

In the early twentieth century, Hilferding (1910) referred to the control of large corporations as *Finanzkapitalismus* whereby control was exerted by banks and bankers rather than shareholders. Are we having a déjà vu? The financial crisis allowed us, shareholders, to view a glimpse of the behind the scene of the financial market, the bankers and financiers taking control of our capital and making decisions they deem fit. Ownership in the funds is seen to be largely dispersed (Cheffins and Bank, 2009) which is why the presence of a board of directors in investment trusts is crucial. Their presence should be for the benefit of the capital providers, thus upholding the principal-agent theory.

The main findings can be related to the performance of female directors. It has been seen that there is a positive and significant relationship with both measures of performance. The results have been confirmed through various robustness tests. Female directors were used as a lagged variable for two main reasons: to deal with any potential endogeneity and also because it can be argued that the effect of female directors on performance does not occur in the same year. Although the inclusion of female directors has been motivated to enhance a firm's image, that same motivation could help these firms to understand the potential of these directors.

Furthermore, we observe a positive relationship between substantial ownership with performance. The agency theory proposes that block holders (substantial owners) can act as a protection for investors; the results support the theory that when there is higher ownership there is a better performance. It can be argued that alongside the board of directors, large investors carry out careful monitoring on the approach investment managers use to use their capital when investing. Our hypothesis proposed that older directors may present some unwillingness to carry out their duties due to a "lazy" behavior, however, we have proven the contrary.

Although this study focuses on the agency theory when looking at different corporate governance mechanisms, it can be argued that the existence of these investment trusts in the financial system is linked with the stakeholder theory. It can be argued that managers should not be pressured to prioritize the interest of the shareholders over the stakeholders since both parties have a common interest which is the survival of the investment trusts.

As investors are becoming more reliant on pooled investment schemes that offer the diversification, the continued presence of those funds is crucial to the system and society. Their low fees and greater exposure allow more investors to invest their money and earn a higher return than what they would earn by simply investing in a bank. Therefore, the presence of good corporate governance is important to ensure the continuity of operation of the funds.

CHAPTER 4: PERFORMANCE OF INVESTMENT TRUSTS USING DISCOUNT

4.1 Introduction

The popularity of investment trusts in the UK is not the sheer reason to embark on this research; in 1965 Eugene Fama brought forward the revolutionizing Efficient Market Hypothesis (EMH) which dictated that “*prices reflect all the available information*” and that the market is extremely efficient in price adjustments of securities (Fama and Thaler, 2016). Therefore, investors should not be able to beat the market by either applying technical or fundamental analysis to make a profit. In 1992, Burton Malkiel furthered the concept mentioned above by suggesting that prices of stocks possess a random behavior which enables the market to correct itself when necessary, furthermore, although the stock market is not mathematically perfectly random, the momentum rise is minimal and excess return should not be realized (Malkiel, 2003).

The EMH model consequently put forward the idea that it should not be possible for investors to earn abnormal profits regardless of the investment strategy undertaken since the price of the securities fully reflect information. Nevertheless, the odd occurrence of anomalies in closed-end funds manifests in the form of the funds trading at discounts and premiums. Their presence has been detected ever since the creation of these funds and has persisted over the years. This anomaly challenges the EMH model, indicating potential inefficiency as potential gains can be made since the funds usually trade at a discount. For instance, if an investor purchases a share of an investment trust at a discount, he will be able to secure a profit when he sells the shares when the fund is trading at a smaller discount.

The previous chapter provided insights into the effect of various corporate governance mechanisms on the performance of UK-listed investment trusts. It was concluded that key mechanisms such as female directors and NEDs as well as their remuneration impacted accounting-based performance. This chapter aims to replicate the exploration of the selected corporate governance mechanisms; however, we will utilize a different measure of performance. Investment trusts have been popular for their unruly trading patterns on the market, the persistence of their discount and premium has created the closed-end fund anomaly. The aim is to investigate whether a link exists between discount and corporate governance.

Investment trusts have a closed structure that restricts unpredictable outflows and inflows, creating a more stable pool of assets on which the NAV is calculated daily which reflects the net asset in the funds. However, when the shares of the investment trusts trade on the stock exchange there is often a deviation based on the forces and participants in the market. The deviation can be either positive (premium) or negative (discount). The discount anomaly in investment funds has been puzzling researchers for years, and propositions by Pratt (1966) and Malkiel (1977) had been deemed to produce weak findings.

Throughout the literature, we have not detected any studies that have focused on the varied corporate governance mechanisms when assessing the performance of UK investment trust. We believe that the exploration of the effect of governance on the performance measure, discount, will contribute to the literature. The observance of existing literature on corporate governance alone in these funds has also been scarce, thus allowing us to fill the gap. Furthermore, we rely on our findings to close some gaps concerning the closed-end fund anomaly.

In the previous chapter, the use of accounting-based measures such as ROA has allowed us to tackle the study from an agency perspective. However, it was not limited to that theory alone, we also detected the stakeholder theory could be utilized but that would be tackled in future research. In this chapter, the focus has shifted to the market-based measure, discount; this deals directly with the maximization of the share price. Since the board of directors should preserve a low discount, we believe that the agency theory is the

best fit in this chapter. The shareholders most likely view the board size and its composition to be important as it will determine the type of monitoring that will be carried out to ensure management keeps the discount level low. Additionally, Lee et al. (1991) highlighted that divergence of share price could be explained by the irrationality of investors thus their behavior can affect performance. It can then be argued that it would be the duty of the agent to curtail such predicament and reassure investors that the board of directors and investment managers are actively managing the deviation level.

This chapter focuses on the interaction of various corporate governance characteristics that have been previously used in Chapter four on the level of discount through the agency theory. The result will allow us to determine whether the results from the previous chapter match or show a different picture.

4.2 Literature review

The literature review explores the discount puzzle in greater detail to have a better understanding of its origin and persistence. This section also seeks to analyze prior studies that focus on corporate governance in CEFs and also those using market-based measures other than the discount when analyzing performance.

4.2.1 The discount anomaly

The closed structure of these investment trusts means that these funds have a fixed market capitalization which allows investors to find the market prices at a different point in time.

Investors are also able to compare the market price of the funds with its underlying asset which can be in the forms of stocks, properties, and other assets; suggesting that there is no information asymmetry when the shares of the funds are priced.

The NAV reflects the intrinsic value of the shares based on its holdings. However, it has been observed that the shares typically trade away from the NAV which goes against the idea of no-arbitrage in an efficient market. The deviation of the share price from the NAV in investment trusts results in discount or premium; however, discount has a more prevailing occurrence thus we refer to the deviation by using discount throughout the chapter. Research has been carried out from both the traditional finance and behavioral finance paradigm to understand this anomaly, nonetheless, both have not been able to put together all the pieces of the puzzle.

Behavioral finance

The unfolding of trading at a discount had been attributed to a four-part life cycle, Lee et al. (1991) found that at the beginning the shares of CEFs traded at a premium (almost 10%). This premium has been linked with the underwriting and startup cost which reduces NAV thus being lower than the share price. However, within a year, the premium ceases to exist and the fund starts trading at an average discount of 10%, the variations in discounts afterward differ. The authors attempt to understand why investors purchase shares during the IPO which in effect is higher than what they would have paid if they waited a few months (Gemmill and Thomas, 2006).

Lee et al. (1991) propose that fluctuations in pricing which lead to discount are attributable to the sentiment of individual investors; since individual investors are represented as a larger portion in the funds, potentially their pessimism and optimism is linked with the rise and fall of discounts. The researchers mentioned above proposed that these noise traders behave irrationally and systematically, and this poses a new risk for rational

investors since the funds that already trade at a discount will turn into a wider discount when pessimism persists. Consequently, the arbitrageurs in the market will choose not to trade with these mispriced shares, as more discount can be expected, and their lack of action allows the present discount to persist.

Shleifer and Lawrence (1990) also found that not all investors are rational in the market and their demand for risky assets is driven by their sentiments and beliefs. On the other hand, rational investors have limited opportunities for arbitrage, and it is also risky. It can, therefore, be assumed that the lack of counter-investment from the rational investor, allows the sentiment of the irrational investor to affect the return of the stocks. The authors further added that since both investors and markets are complicated, they cannot be simply quantified across a few biases. When investment trusts trade at a premium, investors could embark on selling the share of the fund and buy the stocks, however since investment is sometimes made in restricted stocks; this hedging is not possible thus constraining arbitrage.

The last stage proposed by Lee et al. (1991) is the reduction or disappearance of discount in the funds. The directors have the responsibility to close the gap between NAV and share price, which could be executed through mergers, liquidations, or changing from a closed structure to an open one. Brauer (1984) supported the idea that the opening of funds trading at a discount would rid of the issue, the 14 funds in the sample showcased an average return of 30.9%. Furthermore, the researcher adds that this type of reorganization does not occur in all funds trading at a discount, due to potential agency conflicts that can obstruct the change.

Share repurchase has been used by firms for numerous reasons such as the substitution of dividend payout or to achieve a target capital structure with the use of more debt (Jensen, 1986; Opler and Titman, 1994; Allen et al., 2000). Dittmar (2000) added that share repurchase allows for extra cash to be distributed out which restricts managers from squandering the shareholder's capital in the absence of investment opportunities. In the case of CEFs, share buybacks are fueled with the objectives of reducing discount, when there is a lower number of shares floating on the market, the NAV reduces and thus becomes closer to the share price; reducing discount.

An et al. (2012) found that the repurchase of shares reduces the size of the investment trusts. Since the management fee is charged based on the average net asset, this mechanism enables the board to ensure that managers stay vigilant with investment. Therefore, this mechanism plays twofold, it helps reduce discount while reducing potential conflicts. The motivation to enhance performance will, in turn, increase the share price which will once again narrow the gap between NAV. Akhigbe and Madura (2007) also added that shares are repurchased when the gap is too wide. However, they argued that this could trigger investors to purchase enough shares, which would provide them with voting power to change the structure.

Herd behavior

The presence of a large proportion of retail investors in funds has been linked with noise trading (Huang, 2015). These investors are the prime candidate to carry out trades that are influenced by behavioral biases (Barber and Odean, 2013). It is proposed that with the occurrence of noise trading in CEFs, the herding anomaly should be explored whereby the investors typically cluster together to make the same decisions as their peers ignoring their analysis (Hirshleifer and Teoh, 2003). In the case of CEFs, their shares are publicly traded and therefore all investors can gather information about the intrinsic value of these shares. This allows for a reduction in information asymmetry and also transparency should reduce herding.

Herding has been well documented for equities (Hwang and Salmon, 2004; Demirer et al., 2010; Choi and Skiba, 2015) when focusing on investment funds Choi and Sias (2009) found that US fund managers do display strong tendencies to follow the herd while Wylie (2015) documented herding behavior amongst UK institutional investors. Cui et al. (2019) found that there was a positive relationship between VIX and herding in US CEFs for 24 years, where herding was present only on days where volume and volatility are high. That

finding was aligned with Philippas et al. (2013) who focused on REITs. Furthermore, they also detected that herding is more prominent for CEFs with smaller market capitalization which could be linked with liquidity risks.

Traditional finance

Tackling the discount puzzle through the behavioral framework seems questionable, as the anomaly has been linked with noise traders who happen to be retail investors. The majority of investors in UK investment trusts are institutional investors, thus we focus on the traditional factors. The rise of such an anomaly challenges the efficient market hypothesis, the presence of discount could potentially allow an investor to engage in arbitrage and earn a riskless profit. The occurrence of these deviations is a clear violation of this hypothesis, and the advocates of the traditional finance paradigm attempt to focus on factors such as taxes, liquidity, and agency theory to explain the situation as opposed to the proponents of behavioral finance.

The inaccuracy of NAV and taxes

The shares of investment trusts are traded at their market price, as opposed to their NAV which is calculated using the difference between the assets and liabilities and dividing by the number of shares outstanding. The behavioral finance supporters propose that the sentiment of the investors affects the share price thus creating a gap, whereas the traditionalist believes that one reason for the existence of discount/premium is the

overstatement of NAV. There has been an increasing focus on investment in smaller companies from funds such as Blackrock, Henderson, and Standard Life, as managers believe that they can exploit the inefficiencies on the market. Illiquidity is often linked with these smaller stocks, Malkiel (1995) and Datar (2001) found that the illiquidity of underlying stock can play a role in the miscalculation of the NAV. Since trading is less frequent, these stock prices become difficult to set.

CEFs can include these illiquid assets in their portfolios because unlike open-ended funds there is no sudden need to liquidate investments to meet redemptions (Cherkes et al., 2009). The inclusion allows investors to gain exposure to different types of assets which enhances diversification. Lee et al. (1990) added that illiquidity cannot completely explain the variations in discount, since some funds hold no illiquid stocks and still trade at a discount. Furthermore, it can also be argued that the composition of the funds' portfolio does not change drastically over time whilst there is a deviation in discount.

Table 19 shows four randomly selected investment trusts: Bankers Investment Trust, Dunedin Smaller Companies Investment Trust, JP Morgan American Investment Trust, and Templeton Emerging Markets Investment Trusts. It can be seen from Figure 8 that although the funds differ by age and investment sector, there is variation occurs across the premium and discount for each fund.

Table 19 Details of four randomly selected investment Trusts

Fund ticker	Fund name	Sector	Age
BNKR	Bankers Investment Trust	Global	112
DNDL	Dunedin Smaller Companies Investment Trust	UK smaller companies	74
JAM	JP Morgan American Investment Trust	North America	119
TEM	Templeton Emerging Markets Investment Trusts	Global emerging	12

Note: The age is computed up to the year 2000



Figure 8 Variations in discount/premium

Apart from illiquid stocks, Malkiel (1977) proposes that the accumulation of unrealized capital gain can also be associated with the miscalculation of NAV. When there is appreciation in the investments it is associated with a tax liability, therefore the managers delay the realization of these gains. Due to the potential tax liability on a future sale, the investors do not want to invest at the NAV price as that tax liability is borne to them. Consequently, the share trade at a discount while embedding the tax liability; the larger the unrealized appreciation the larger the discount. Halkos and Krintas (2006) added that

the holding of illiquid underlying stock inherently makes the holding period later as these stocks are less traded, which also leads to the accumulation of unrealized gains.

Constantinides (1984) suggested that when the gain is deferred in conjunction with optimal timing, there can be a result of zero capital gains tax at liquidation, but we cannot assume that the holding period of investors will have the same timing. When focusing on British funds, Dimson and Minio-Kozerski (1999) found that CEFs were not allowed to distribute capital gains to the investors which rendered them not liable for taxes whilst they were holding the shares. As Malkiel (1977) pointed out that under a very relaxed assumption, taxes could explain around 6% of the discount in the CEFs which means that the overall discount remains unexplained; therefore, we should consider other factors.

Although investment in illiquid assets can be a benefit in terms of diversification and good returns for the investors. The recent scandal with Woodford Equity Income Fund (Beioley, 2019) has highlighted that the mismatch between the liquidity of the funds and liquidity of the underlying assets such as early-stage biotech companies could potentially become a systemic problem. It has been suggested that there should be a review on the cap on investments made in those less liquid assets. This highlights the difficulty in establishing the value of the shares and since the fund is allowed to take on leverage this could potentially be a dangerous combination.

Agency costs

Bradley et al. (2010) propose that poor performance on behalf of managers and also the payment of excessive fees to the latter account for the discounts in the investment trusts. The performance of these managers can be linked with their managerial abilities which can stem from their experience and expertise. Boudreaux (1973) originally focused on the

fees payable to the investment managers, when these managers fail to utilize the capital in the funds well, the value of the investment is not maximized which can result in the share trading less than the NAV. Furthermore, there is a certain expectation that the investment trusts trading at a discount will maintain this performance thus generating skepticism amongst potential investors, new investors who wish to buy the shares will do so at a discount.

Malkiel (1995) focused on the ownership of insiders in the closed-end funds and suggested that larger insider ownership might lead to a larger discount. The author pointed out that if the fund is selling at a discount, investors could potentially receive windfall gains if the funds are liquidated at NAV. It can be argued that when a larger portion of ownership is owned by insiders, it is less likely that these shares will be sold off as these investors could have either been the founders of the funds or have been remunerated by shares. This leads to less trading activity which affects the liquidity of the shares.

Huang (2015) found a negative relationship between discount and net institutional demand. Institutional investors are seen as price stabilizers who would choose to invest in CEFs that are trading at a discount. These investors are believed to trade against mispricing of the share prices which are likely to reduce discounts. Sias and Starks (1997) and Sias et al. (2006) shows that an increase in institutional presence helps with the elimination of mispricing and also stock volatility. Therefore, their presence can help reduce the deviation between the market price and NAV. Following this study, it is proposed that the presence of institutional investors will be effective in monitoring the directors who in turn will attempt to reduce the deviation.

Chen et al. (2018) found a link between the discount of US CEFs and the opacity of the earnings of the underlying companies. They argue that the lack of information regarding the underlying company may lead to higher information acquisition costs for investors. We can also argue that investment managers may suffer the same costs when building the portfolio for the fund, especially if they are gathering private and public information for foreign companies (Beneish and Yohn, 2008). Furthermore, there exists a potential conflict of interest if the board of directors is not ensuring that the managers preserve low costs, particularly if there is a connection with discount.

Most of the above studies focused on the US CEFs, and in this study, we utilize UK investment trusts whereby the director's ownership will be used along with other corporate governance mechanisms. The sample shows that there are limited insiders on the boards and the amount of director's ownership is not substantial. It is hypothetical that the higher the director's ownership the lower the discount will be, as being part owners will motivate the directors to make decisions that will benefit the fund.

4.2.2 The premium anomaly

Although the discount is the prevailing anomaly when studying CEFs, occasionally some funds trade at a premium especially during their initial public offering, trading at an average premium of 7%. Lee et al. (1990) add that it is perplexing why investors will choose to invest at a premium, as the pattern dictates that within a few months the funds trade at a discount. There is an assumption that these investors are either overly optimistic about the investment made, blindly trust the skills of the investment managers or they are simply irrational traders; which is linked back to the behavioral theory. Cherkes (2012) found that approximately 40% of US CEFs trade at a premium, they add that the investor sentiment theory cannot simultaneously account for the existence of discount and premium.

This chapter will be based mainly on the agency theory; therefore we will aim to assess whether different corporate governance mechanisms affect the level of discount or premium. Figure 9 shows the presence of premium across 47 investment trusts between 2000-2017. The premium represents 11% of the total observation, showcasing the dominance of discount over premium in the funds. The graph shows that there is no clear pattern in the deviations overall, with a premium ranging between 0.04%-218.18%. However, it can be seen that the striking peak of 2008 repeated itself in 2017 with a higher premium. Investors sometimes buy into funds whose sector may be popular, however, the

sample of funds shows that the sector for the funds is varied from flexible investment to UK smaller companies.

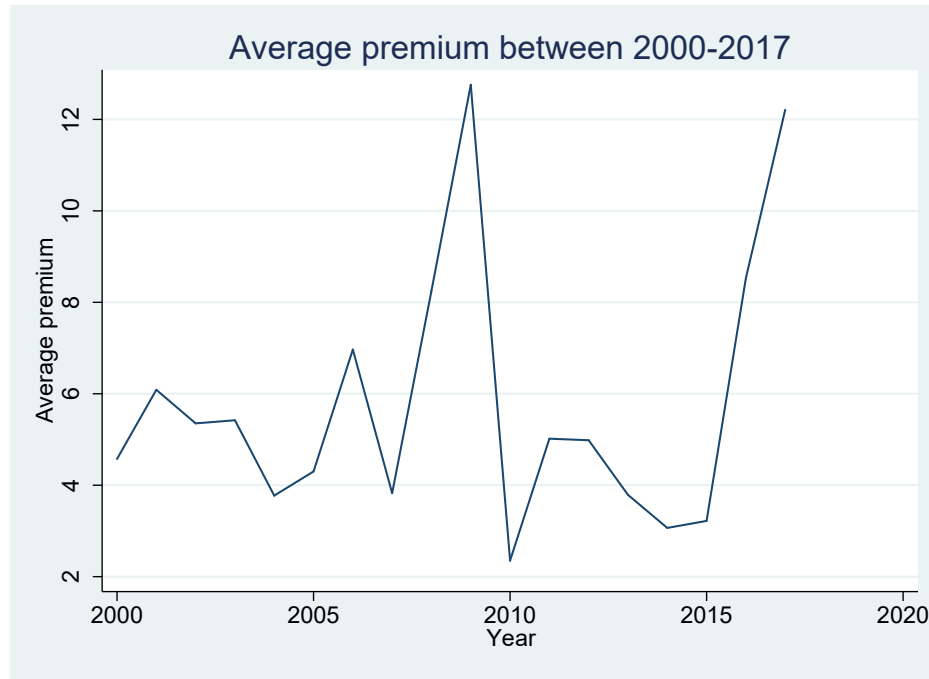


Figure 9 Average premium

The discount anomaly covers much of the research carried out on closed-end funds. Souther (2018) focuses on the network of the board of directors in 622 US closed-end funds. It was seen that there was shared employment or education history between the members of the board. The prevailing tendency was associated with higher remuneration and expense ratio. This result supported the findings of Malenko (2014), who stressed that a board with diversity would be more incentivized to communicate opposing views. Furthermore, the board would be effective and uphold its responsibility of minimizing the expense ratio. The authors found that as the connection between the boards increased,

there was a 7% increase in remuneration. However, it is assumed that there would not be enough independence on the remuneration committee.

Cherkes et al. (2009) argued that amongst the several advantages CEFs provide to their investors, access to illiquid assets greatly benefit investors; these assets tend to be smaller or international stocks. Fletcher (2018) focused on the diversification benefit that investors can acquire when investing in international CEFs, by concentrating on market frictions. It was found from Fletcher's (2018) study that no short-selling constraints lead to a substantial reduction in the benefit provided by diversification. However, the inherent presence of discount/premium in CEFs can be seen as a drawback for international investments as the shares of these CEFs are exposed to local as well as global factors and sometimes may lead to higher deviation from the NAV.

Despite the persistence of discount for over 50 years as documented firstly by Pratt (1966), there is neither a consensus regarding the source of this anomaly nor has ample studies been focusing on corporate governance. This chapter concentrates on discovering whether the presence of corporate governance in the investment trusts allows for funds to have better performance, with reduced discount. Discounts exist due to the low trading price as compared to NAV, which is not favorable for the investors; the larger the discount the worse it is for the investment trusts.

4.2.3 Corporate governance theories

In Section 3.2.2 several corporate governance theories that have been utilized extensively in the literature are discussed: agency theory (Olsen, 2015; Pierre and Peters, 2017), stakeholder theory (Turner and Solin, 2012; Chizema and Shinozawa, 2012), stewardship theory (Olsen, 2015; Snippert et al., 2015; Boon, 2016) and resource dependence theory (Boyd and Solarino, 2016; Schmid and Roedder, 2021). It was observed from the literature that the agency theory was a dominant framework that has been employed in

much of the corporate governance literature (Dicke and Ott, 2002; Nicholson and Kiel, 2007). However, some critics point out that the agency theory does not suffice in explaining certain behaviors in governance (Olsen, 2015; Pierre and Peters, 2017) thus it is important to consider various other theories.

Stakeholder theory

Stakeholder theory challenges the notion that shareholders are the only important party in an organization (Parmar et al., 2010). However, in an investment trust there are no employees involved nor is the fund linked with communities. It was discussed in the previous chapter that the stakeholder theory is not suitable to be used in this study due to the nature of the organization. The main parties involved in an investment trust are the shareholders, the investment managers, and the board of directors; therefore, there is only a principal-agent relationship that exists which renders the agency theory more suitable. Harrison et al. (2010) argued that when there is a conflict of interest between stakeholders, the executives must ensure that the problem is resolved and each group attains value; however, in an investment trust there are rarely any executive directors, as most directors on the board are not involved in the daily activities of the fund.

Stewardship theory

The stewardship theory shifts the focus on the “selfless act” of the managers; it is proposed that when managers are allowed to work at their discretion, they execute the task more efficiently. This theory denies the existence of the problem proposed by the agency theory

since it is proposed that the behavior of the managers is not driven by financial rewards but rather by their reputation and career. Zahra (2003) and Carney (2005) argued that there is a reduced conflict between principal and agent when their interests converge, however they made this observation for firms with high family ownership. In this study, our sample of investment trusts includes dispersed ownership from both retail and institutional investors who are not the managers or the directors therefore the interests are not necessarily aligned.

Resource dependence theory

Kaur (2018) characterized a firm as a system that is dependent on the support of the external environment within the framework of resource dependence theory. Hillman et al. (2000) argued that the theory emphasizes that the directors play a vital role in the acquisition of resources through their connection to the external environment since all the resources required by a firm may not be owned by them. Those investment trusts are utilized, which are funds that make investments on behalf of shareholders, hence the main resource required for the organization is the capital provided by the investors. It should also be noted that investment trusts can borrow money to invest, it has been observed from the sample used in this study that the average debt to equity ratio was 0.14, whilst the upper quartile was 0.19. The result shows that the amount of debt included in their capital structure is kept quite low due to the potential risk. It can be contended that the board's involvement in the acquisition of potentially more debt would not be required.

Agency theory

It has been observed that failures in institutions are often so large that they affect various areas of society, particularly investors, who are often faced with their capital being wiped out (Mallin, 2016). Consequently, investors must be protected because they are critical players that contribute funds for investment in investment trusts which renders corporate governance important. Dalton (2007) and Campbell et al. (2012) found that the studies carried out on corporate governance have been directed towards the agency theory since the separation of ownership and control will inherently lead to the deviation of interest. Furthermore, Solomon and Solomon (2004) posited that the accountability of the board of directors is a fundamental part of good corporate governance; before committing their capital investors should consider indicators such as insider shareholder, board independence, and board size.

Theory of choice

Kyere and Ausloos (2019) found that stakeholders' activities can also affect the corporation, if they are discontent with the operations of the corporation, it may react negatively towards the firms since these various parties may boycott the firms which can then lead to a modification in their governance structure. However, these stakeholders are not present in investment trusts which renders this theory ineffective in this study. The stewardship theory assumes that managers are not selfish, however, it can be argued that managers may not always act as good stewards towards the firms and may take advantage of their position (Schillemans and Basuioc, 2015).

Since the recommendations of the agency theory focus on the principal-agent relationship, Zattoni and Cuomo (2010) find it is the most adopted framework when studying corporate governance. The principal-agent relationship can be observed from the structure of investment trusts, as the investors (principal) delegate investment responsibilities to the investment managers (agents) and monitoring duties to the board of directors (agents).

Campbell et al. (2012) find that the agency theory concentrates on value creation for the investors, however, the value will not be created unless the managers in the firms are controlled. Therefore, it can be argued that the agency theory would be the most appropriate when investigating the board of directors and their remuneration as they must detect opportunistic behavior of the agents in the investment trusts if these agents become guided by their interests.

4.2.4 Corporate governance characteristics

The previous chapter (Chapter 3) explored the effects of corporate governance characteristics on the performance of investment trusts with the aid of accounting-based measures, ROA, and ROE. In this chapter, the market-based measure, discount, is utilized to investigate the performance of funds. Similar to the previous chapter, the study is analyzed through the lens of agency theory where several hypotheses emerge. The corporate governance characteristics that have been employed in the prior chapter such as female directors and tenure will be included in this chapter; thus, it will determine whether corporate governance has an impact on the discount of investment trusts.

Non-Executive directors (NEDs)

It has been observed in our sample that since 2013, 92% of the board of directors comprised of NEDs, the remaining 8% of the investment trusts had a board of at least 50% of NEDs. Nicholson and Kiel (2007) pointed out that within the agency theory a board of directors with a greater proportion of NEDs leads to better monitoring, this can

be affiliated with their lack of dependence on the management of the institutions. Ullah et al. (2018) found that the average NEDs in UK firms was 65.26%, they also argue that the presence of more NEDs on the board will provide stronger monitoring. It was reported by the Shanghai Stock Exchange (2004) that 70% of independent directors are nominated by the top shareholders; this finding could indicate a more effective board as the directors do not have any association with the company affairs. Liu et al. (2015) detected a positive relationship between board independence and firm performance in Chinese firms.

Zattoni and Cuomo (2010) argued that through most codes of corporate governance, there are recommendations for the inclusion of non-executive directors on the board since these directors are deemed to be likely to safeguard the interest of the shareholders. Merendino and Melville (2018) studied the effect of the board structure on performance in Italian firms through the agency theory, they argue that non-executive directors are effective instruments within the corporate governance system as they scrutinize the board's business decisions. Mira et al. (2019) found that the board of large companies in the UK consists mostly of non-executive directors. The researchers also found that in the UK there are no restrictions on the firing of directors unlike the US, thus firms have control of making changes to the board if the directors do not perform well.

Under provision 17, the UK Code of Corporate Governance (2018) maintains that the majority of all the board members should be non-executive directors, as their prime role in the organization is to scrutinize the performance of management and executive directors. A policy paper published by the Department for Business, Energy and Industrial Strategy³⁶ in the UK argued that the UK regulators have no direct power to determine whether directors on the boards breach their duties; thus it can be argued that the presence of non-executive directors and also diversity on the board can provide the internal control to ensure that the duties are upheld for the benefit of the shareholders.

Hypothesis 1: A higher proportion of NEDs on the board will reduce the discount level

³⁶ <https://www.gov.uk/government/publications/restoring-trust-in-audit-and-corporate-governance/restoring-trust-in-audit-and-corporate-governance#company-directors>

Female directors

Faccio et al. (2016) focus on the gender of CEO in European companies, it has been observed that when firms transition from male to female CEOs there is a reduction in corporate risk-taking. They argue that women tend to exude less overconfidence which helps reduce acquisitions thus it creates less need for debt issuance. Levi et al. (2013) showed that firms with more male directors on the board paid higher acquisition premium in M&A activities whilst Beck et al. (2013) found that female officers are less likely to fall into arrears for loan repayments; these studies show that the inclusion of women on the board can have a positive impact on the firm's efficient use of capital.

Earnings management is a strategy carried out by managers to create a positive perception of the firm, according to Harris et al. (2019). Studies conducted by Bergstresser and Philippon (2006) and Jiang et al. (2010) linked this manipulation with an attempt to raise the value of the firm which in turn would increase the personal wealth of the managers through equity-based compensation packages. Kyaw et al. (2015) and Lakhali and Malek (2015) found that the gender of the directors has a role to play in earnings management whereby manipulation is reduced when there are more women on board since female directors are more likely to be ethical. Harris et al. (2021) employed the agency theory, which suggests that when managers are promised stock-based pay they tend to take more risks; they propose that female directors will be more active in their actions to capture the increased compensation.

Over the past few years, there has been uproar on the board of directors around the world due to gender inequality. The European Parliament³⁷ issued a mandate in 2012 to improve gender balance among non-executive directors, to achieve 40% of representation of the

³⁷ <https://www.europarl.europa.eu/news/en/press-room/20210430IPR03214/gender-equality-parliament-strives-to-be-frontrunner-among-eu-institutions>

underrepresented sex. The report highlighted that gender-diverse boards promoted transparency and found conclusive evidence that firm value increases when firms are run by female CEOs. In the UK, the government-backed has the Hampton-Alexander Review³⁸ since 2016 to improve gender balance in FTSE leadership.

Hypothesis 2: The presence of a greater number of female directors on the board enhances performance by reducing discount

Age of directors

A report in the Financial Times shows that there has been a rise in the age of UK NED, to 60.3 years showcasing the aging of the boards in the UK (Brown, 2017). On the other hand, the board in countries such as France or Norway is seeking the inclusion of younger directors to tackle technological insurgency in the finance world. In this study, it is also believed that the directors in the investment trusts will have better performance when they are younger. Goergen et al. (2015) found that directors that are in the same age group tend to be similarly minded. In contrast, Fan et al. (2021) argued that this could weaken the exercise of independent judgment which in turn would lower the effectiveness of their monitoring duties.

It can be argued that diverse boards would more likely be more independent which can lead to more effective monitoring, Carter et al. (2003) also added that directors with different cultural backgrounds could induce questions that would not be asked by directors from more traditional backgrounds. Based on the agency theory and social psychology, Ararat et al. (2015) argued that there is a positive relationship between firm performance as measured by the market to book value and ROE and board diversity. Board diversity in their study is captured using age, nationality, gender, and education. Garcia-Meca et al.

³⁸ <https://www.gov.uk/government/publications/ftse-women-leaders-hampton-alexander-review>

(2015) also found that a board with diversity can help improve monitoring from the directors as they would be executing their decisions with different points of view and perspectives. The authors focused their study through the agency theory lens, and the same theory is used in this study.

As mentioned in Chapter 3, the Corporate Governance Code in the UK does not make any recommendations about the age of the directors, instead, they discuss board diversity. The FRC released a report on board diversity and effectiveness in FTSE350³⁹ companies stating that an effective board should be dynamic and promote collective vision. The report also added that increased diversity helps bring in different perspectives, however, in this study the focus is on several factors that promote diversity which includes age. After scanning a pool of literature, this is the first study to explore the age factor and its impact on the performance of investment trusts. Therefore, this will be a contribution to the literature.

Hypothesis 3: The performance of the investment trusts is negatively impacted by the presence of older directors where discount is widens

Tenure of directors

Janis (1972) found that having a range of tenure in the firm suppresses a unified group which does not lead to groupthink as this would hinder effective monitoring. It is seen that boards with various tenure are linked with less likelihood of accounting restatement and if it does occur, the probability of replacing the CEO increases. Bonini et al. (2017) detected that 24% of the independent directors on the boards of S&P500 firms have a tenure of 15 years or more. In the study mentioned, the researchers argue that the average tenure of the board alone is not enough to understand the relationship with performance.

³⁹ Investment trusts trading on the London Stock Exchange are inclusive on the FTSE350 index

It is also important to focus on single director tenure, which they found to have a positive relationship with the firm value.

Furthermore, Hou et al. (2014) showed that a higher tenure of CEO from S&P500 firms does not necessarily show better performance. It was found that as the mandate increases the salary also increases, but when looking at non-performance-based compensation such as bonuses and options there is a decrease. This shows that as the tenure increases, the directors are less focused on attempting to attain higher performance to gain bonuses. Directors are already earning a higher fixed salary; they do not wish to take a risky decision to boost performance as it could affect their position in the company. As age and tenure increase directors would choose to opt for more stability rather than inconsistent returns. Since in this study we focus on the agency theory, it can be argued that when directors have a long tenure there is a greater chance that they will develop a close relationship with the investment directors and thus become entrenched.

The UK Code of Corporate Governance (2018) proposes a maximum tenure of nine years for the position of chairman and also nonexecutive directors, Principle I mentions that the board of directors should be regularly refreshed and provide access to the younger generations. Therefore, it is hypothesized that when the tenure of the board increases it can indicate a potential entrenchment of the directors who have been in power for a long period, and this can impact the value of the firm if their presence is solely for their benefit rather than for the shareholders.

Hypothesis 4: The longer the tenure of directors the greater the discount level

Directors' ownership

Jensen and Meckling (1976) found that managerial ownership can be used as a mechanism for interest alignment for managers and directors, however, Florackis et al. (2020) argued

that managers tend to under-diversify their portfolio thus having greater exposure to firm-specific risk. Gormley and Matsa (2016) explained that managers choose to underinvest to “play it safe”, ultimately this affects the shareholder value. Chen et al. (2020) focused on private loan pricing and non-executive ownership, they argue that the voluntary decision for directors to own shares can send a positive signal of the firm performance to the market. The authors also detected that ownership of the directors leads to a reduction in information opaqueness.

Guthrie and Hobbs (2021) found that different mechanisms such as managerial ownership can mitigate the agency problem. They observe that CEOs without any ownership in the firm tend to over or under-invest in projects however they are more vigilant when they are part owners of the firms. The ownership stake prevents the CEOs from building empires and is less likely to invest in negative NPV projects which can lead to value destruction for the shareholders. Rashid (2016) argued that the entrenchment of managers is present in the firms and unless there are mechanisms in place to curtail their entrenched behavior, they would pursue actions that will be beneficial for them thus accepting the validity of the agency theory. Their finding shows a reduction in agency cost when managerial ownership is increased.

The UK Code of Corporate Governance (2018) provides more details on the composition of the board, Provision D.1.3 states that the number of share options held by the NED can help determine whether the latter is independent. The generated data shows that the average director ownership between 2000-2017 has a range of 1.92%-2.83% indicating that the NEDs do not hold excessive shares in the investment trusts which can impede their independence. It can also be argued that minority shareholders possess less ownership stake and therefore have less opportunity to influence decisions taken in the funds. Therefore the investors could rely on the NEDs to safeguard their interest since the latter would also possess the same level of ownership and could have aligned interests.

Hypothesis 5: The director’s ownership is positively related to the performance of investment trust where discount will be reduced

Substantial ownership

Arora and Sharma (2016) find a positive relationship between institutional shareholding and firm performance: Tobin's Q. The authors argue that the presence of larger shareholders may send a positive signal to the market about the profitability of firms which can develop into greater demand for shares, thus enhancing the valuation of the firms. Battaglia and Gallo (2017) discussed that the performance of banks can be enhanced in the short term when more risks are taken, however, this can translate into significant damage if there are too many exposure tail risks. The mentioned study hypothesized that institutional shareholders would exercise better monitoring of the managers and will also have a better insight into complex activities.

Lozano et al. (2016) focused on corporate governance through the lens of agency theory, they mention that ownership concentration can be utilized as an internal mechanism to reduce agency conflicts. Song et al. (2015) argued that some owners have different behavior towards the organization which can impact the value for all the shareholders. The ownership structure of large shareholders in the investment trusts is equally highlighted since investors may have better abilities to control managers' actions that would in turn help reduce agency costs and enhance performance. Bao and Lewellyn (2017) focused on institutional ownership from an agency perspective, and argue that controlling shareholders would have a greater influence on the reporting policies in their firm as they would be guided by their self-interested agenda which would result in greater earnings management; thus there will be less misreporting.

The UK Stewardship Code (2020) contains a set of principles to encourage asset owners and managers for more transparency and to increase their stewardship duties. Principle 1 focuses on institutional investors' responsibilities, which include maintaining continuous interaction with the management teams; whilst Principle 3 discusses the role of monitoring the investee companies where formal meetings must be set up for the

discussion of the performance of the funds. These provisions showcase the importance of the presence of institutional investors in investment trusts and their active engagement with the management team to better understand their investment choices and also hold them accountable if they cannot deliver on their promised strategy.

In this chapter performance is measured using the market-based measure and discount; it can be argued that the presence of substantial holders such as investment funds and banks can be viewed positively by the market as the latter are investing larger capital in the investment trusts. Therefore, it can be debatable that if there is an increased demand for the shares, it will help boost the share price which will narrow the discount.

Hypothesis 6: Greater substantial ownership will lead to a lower discount

Remuneration

Abernethy et al. (2015) stated that when the board of directors sets up an appropriate remuneration for the CEO it showcases the presence of strong corporate governance. Cerasi and Oliviero (2014) found that when firms are experiencing negative market returns the compensation of the directors should be reduced since the reward is tied to the performance. The researchers added that during the crisis of 2008 CEOs from the US banks did incur losses in their incentives. The occurrence of abnormally low stock returns and unfavorable performance have also been detected when high compensation is paid out. Hermalin and Weibach (1998) found that CEOs who want to maximize their wages and control benefits prefer a board of directors who have low incentives to monitor the activities in the firms, thus when selecting directors, those CEOs will choose the ones who are loyal to them.

Black et al. (2005) found that directors face negligible personal risk, however, those that do not receive an extra layer of legal protection are compensated for that risk. Aguir et al.

(2014) focused on the director's remuneration through the lens of agency theory, they also argue that directors who are protected face less liability and observe a negative relationship between director liability and compensation. They further argued that if the directors are receiving less compensation, and are less likely to make an effort. Mallin et al. (2015) also focused on the agency theory when observing the remuneration of NED. The study points out that with the increase of duties and legal responsibilities, the directors must increase their time commitment to the institution but at the same time they are also faced with greater reputational risk.

Bratton (2005) and Mallin et al. (2015) equally focused on the remuneration of the directors through the lens of agency theory. It was observed by Mallin that the directors that do not exercise independence as stated in the corporate governance codes were recipients of larger remuneration. Since the UK Corporate Governance Code stipulates that remuneration of the NEDs should be based on their responsibilities, it can be argued that if the directors do not exercise independence it will affect the performance. Fedaseyeu et al. (2018) find that directors who are better qualified are remunerated a higher pay; qualification is measured using focusing on experience within the areas of finance, law, consulting, and accounting.

Section P of the UK Code of Corporate Governance mentions that the non-executive directors should be remunerated based on their commitment to the organization, which shows that the remuneration should be based on merit rather than the loyalty that the directors have towards the CEO.

Hypothesis 7: Remuneration is negatively related to performance, larger remuneration is linked with a larger discount

4.2.5 Performance

Bliss et al. (2006) had previously argued that team management can be beneficial for funds as there is less reliance on the “star” manager, who may end up leaving the fund. However, Adams et al. (2018) add that benefit can be derived from the team only in the presence of strong monitoring from the board of directors. The researchers measure fund performance as the risk-adjusted return using alpha from the Carhart, four-factor model. In parallel, Hunter et al. (2014) also utilized the Carhart four-factor model when studying mutual fund performance, an additional active peer benchmark which represents an equal investment in all same category funds is formed. The peer group of the funds employs the same set of strategies.

Del Guercio et al. (2018) examined the performance of mutual funds from the largest fund families in the US, whose managers simultaneously manage other types of funds such as hedge funds and separate accounts. The study observes that mutual funds underperform compared to the benchmark for mutual funds when the manager starts managing hedge funds which could be driven by opportunities and incentives acquired through the management of hedge funds. The two measures of performance include CAPM, the one-factor model, and Carhart, the four-factor model. Some of the variables include fund size, family assets, fund flows, fund age, and expense ratio.

Some studies also focus on socially responsible funds; Leite and Cortez (2015) centered their research on French funds during crisis and non-crisis periods. The study measures the performance of the funds using the Carhart 5 factor model; the model is adjusted by including dummy variables to account for the crisis and non-crisis periods. Reboredo et al. (2017) studied mutual funds focusing on alternative energy detecting an underperformance for funds comparative to socially responsible mutual funds. Performance is assessed by focusing on Fama and French’s three-factor model, with the inclusion of the momentum factor (Carhart) and timing risk factor (Bollen and Busse).

Henke (2016) focused on the performance of mutual funds with corporate bonds portfolios after selecting investment through a social screening. The research sample includes 103 socially responsible funds across Europe and the US. An overperformance of 0.5% is detected when compared with conventional funds, attributing this performance with the rejection of bonds with poor social activities as these could be translated into

ESG risks. The study employs a five-factor model which includes some factors such as aggregate (excess return over 1month treasury yield), equity (excess return over the S&P500), and term (difference between short term and long term. The dependent variable that was utilized was the difference between the monthly returns and the 1-month treasury bill.

Shi (2017) utilized a difference-in-differences estimate when observing the performance of hedge funds, the results showed that performance deteriorates upon the disclosure of their portfolio composition. The study employed the Fung and Hsieh (2004) seven-factor model alpha. Bebchuk et al. (2015) studied activism in hedge funds, and they observe that interventions led to improved operating performance when using Tobin's Q and ROA as indicators. The interventions tend to occur in funds that are performing poorly. Sun et al. (2018) investigate the performance of US hedge funds, they used several performance measures which include the appraisal ratio and the Sharpe ratio. An analysis using a seven-factor model is also used, which includes the liquidity factor proposed by Pastor and Stambaugh (2001).

It is important to reiterate the fact that in this thesis, the focus is on agency theory. Investors invest in an investment trust to earn a good return, thus it is the responsibility of the fund managers to utilize the capital provided by the investors efficiently to maximize their wealth. Therefore, the aim is to measure performance using firstly two accounting-based measures which are return on asset and return on equity. Furthermore, the persistence of the discount anomaly has garnered much interest on investment trusts; the intention is to observe if corporate governance aids in reducing this anomaly. The discount factor is a market-based performance measure that will also be used.

Discount

Guirguis (2021) focused on the presence of discount in investment funds in the UK and US, the author attempts to determine the factors that impact this deviation. The model in this study employs two new factors: investor sentiment risk and expenses. It has been observed when a six-factor model is utilized, that model helps explain 67% of the variation in the excess discount for UK investment trusts. Gemmill and Thomas (2002) also focused on the effect of the sentiment of the investors. The researchers utilized discount as a dependent variable and retail-investor flow as a proxy for noise trader sentiment and observed a smaller discount when retail investors held more shares indicating the latter does not contribute to discount in the long run.

Johnson et al. (2006) also utilized discount as a dependent variable and determined that closed-end funds can reduce discount (undervaluation) using dividend policy as these policies have some signaling values. The researchers concluded that funds that adopt strong dividend policies experience a significant reduction in the discount. Kryzanowski and Mohebshahedin (2016) focused on the effect of board governance and the performance of US closed-end funds. Return was used as a measure of performance, and the proxy for variables includes share return, NAVPS return, and return alpha. The variable NAVPS return includes the components of NAV and shares price, this variable is like the dependent variable that is utilized in this study.

Souther (2018) investigated the effects of internal board networks on the performance of closed-end funds. Using discount as the dependent variable, it is observed that the presence of internal networks in the fund leads to a larger discount which indicates lower fund value. Dam et al. (2019) focused on investors' demand for leverage in closed-end funds, and observe that leverage is an important determinant of the deviation from NAV in fixed income and equity funds. The results of the specified research show that when leverage is increased, the premium in the fund is increased by 8.70-10.50 basis points.

4.3 Research gaps and contribution

Previous studies such as Lee et al. (1991) and Malkiel (1977) have attempted to link the discount anomaly with various factors such as manager’s skills and irrationality, but there is no general agreement to explain such occurrence. This study aims to find a piece of the puzzle by focusing on perplexing deviation in UK investment trust with an attempt to link corporate governance with its persistence. The focus is on UK equity-focused investment trusts trading on the London Stock Exchange since the UK has a larger CEF market compared to other countries as shown by Table 20. This can also imply a larger diversification in terms of their investment focus to better understand the existence of discount.

Table 20 Closed-end funds (CEFs) around the world in 2018

Country	Number of CEFs	Types of CEFs
Australia	114	Listed investment companies/trusts (Ex. REITs)
Canada	103	Closed-end funds (incl. REITs)
UK	369	Investment trusts (Ex. REITs and VCTs)
US	122	Closed-end funds (Ex. REITs)

Data source: Australian Stock Exchange, Toronto Stock Exchange, and Morningstar

It is believed that corporate governance will have a greater impact on these various market-based performance measures than in the previous chapter because the directors on the boards have to keep track and minimize the deviation from NAV and also they control the number of shares trading in the market which directly affects the chosen performance measures. Studies by Gemmill and Thomas (2006) and An et al. (2012) have focused on the effect of share repurchase on discount, by considering the agency theory. The directors

in the funds embark on repurchasing shares which reduce the size of the fund thus limiting management fees. Chapter 6 will explore management fees further in further detail.

Compared to US CEFs, the investment trusts in the UK are listed on the main market and there is transparency in the repurchase price. Yang (2018) highlighted that often where there is no transparency the funds announced repurchase, and no implementation which leads to a continuous deviation of the share price, thus affecting investors. The implementation of the 'Retail Distribution Review' in 2013, has further enhanced the transparency of these funds in an attempt to encourage investors to invest in these investment vehicles (JP Morgan, 2014). It can be argued that there would be fewer agency conflicts in these funds if there is greater transparency.

This study also uses the agency theory by identifying whether different board characteristics and ownership affect the performance, focusing on the age, tenure, and female directors present on the board. These characteristics have not been covered as per our knowledge using the methodologies and performance measures employed in this chapter. Since the directors in investment trusts are partly responsible for keeping the discount level low, we believe that these corporate governance mechanisms are appropriate to be utilized. and will help to determine whether they affect shrinking the gap between NAV and share price, which translates into better performance.

Therefore, we can formulate the research question to be tackled in the chapter as follows:
Does corporate governance affect the level of discount in UK equity-focused investment trusts?

4.4 Data and methodology

4.4.1 Sample

In this chapter, a similar sample used in Chapter 3 is selected, focusing on a sample of 123 equity-focused investment trusts incorporated before 2000. The sample period spans 18 years period (2000-2017), and this period was chosen since it is the longest period that encompassed the largest sample for investment trusts. The concentration is focused on equity investment trusts since most funds (119) focus on this investment objective.

4.4.2 Independent variables

The corporate governance data to be utilized in this chapter will be the same as those used in Chapter three, whereby we focus on board characteristics such as age and tenure of the directors, the presence of female directors, and the remuneration of the directors. The use of these characteristics alongside the proposed methodologies in this chapter has not been seen in other studies; which will aid the contribution to the literature. Furthermore, a hand-collected unique data set 123 of equity-focused investment trusts from 2000 to 2017.

4.4.3 Dependent variables

Market-based measures: Discount

In this chapter, the performance variable will be discount, which is represented by the deviation of the share price from the NAV. This dependent variable had to be calculated

due to the inconsistent data acquired from the annual report, whereby the calculation was based on diluted and undiluted NAV in the annual reports of various investment trusts. Therefore, we first calculated the NAV which made the data set uniform for all the funds, and then calculated the deviation of the share price from the NAV. It was recorded as either discount (NAV>share price) or premium (NAV<share price). The formula used to calculate discount is as follows:

Formula 1

$$\text{Discount} = \frac{(\text{Share price} - \text{Net asset value})}{\text{Net asset value}} * 100$$

Example: The Aberdeen Japan Investment Trust PLC (AJIT) and Aberdeen Asian Income Fund LTD (AAIF) are investment trusts under the Aberdeen Standard Investments Management group. The share price and NAV for the year 2019 are given below, these figures are used to demonstrate the calculation of discount.

	AJIT	AAIF
Share price (£)	214.00	550.00
Net asset value (£)	227.15	617.09
Discount	$\frac{214.00 - 227.15}{227.15} * 100$ = -5.79	$\frac{550.00 - 617.09}{617.09} * 100$ = -10.87

4.4.4 Research methods

Research model

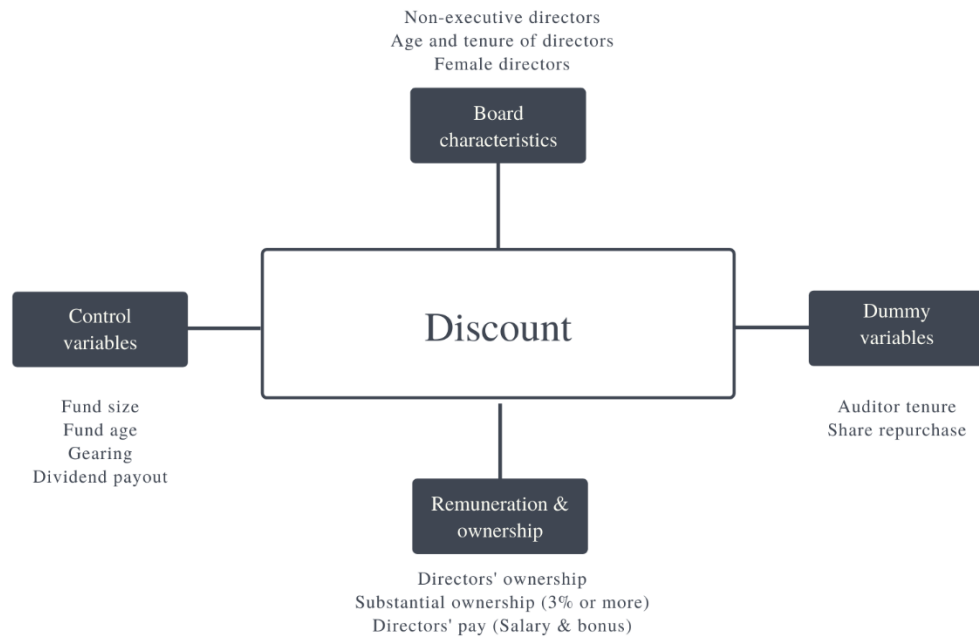


Figure 10 Overview of variables

Table 21 Summary of the proposed hypothesis, descriptions & expectations

	Hypothesis	Definition	Symbol	Expectation
<i>Dependent variables</i>				
	Discount	$[(\text{Share price} - \text{NAV})/\text{NAV}] * 100$	DIS	

Independent variables

	Hypothesis	Definition	Symbol	Expectation
Non-executive directors (NEDs)	H1	The proportion of NED on the board	NEDS	-
Female directors	H2	The proportion of female directors on the board lagged by 2 years	FEM_2	-
Age of directors	H3	The average age of the directors (ln)	LNAGE	+
Tenure of directors	H4	The average tenure of directors (ln)	LNTEN	+
Directors' ownership	H5	Total ownership of the directors	DOWN	-
Substantial ownership	H6	Total of ownership of shareholders owning 3% or more	SOWN	-
Remuneration	H7	Total compensation paid to directors (ln)	LNREM	+
<i>Dummy variables</i>				
Audit tenure		The average tenure of the auditor	AUD	+
Shares repurchase		Number of shares repurchased	SHARE	-
<i>Control variables</i>				
Fund size		$Size_t = \ln(\text{Market capitalization})$	LNMCAP	-
Fund age		$Age_t = \text{age at the time, } t$	FUGE	-
Gearing		$Gearing_t = \text{Debt}_t / \text{equity}_t$	GEAR	+
Dividend payout ratio		$\text{Dividend payout ratio}_t = \text{Total dividend}_t / \text{net income}_t$	DIV	-

Data source: Discount was manually computed using the formula above and the data for share price and NAV were retrieved from the annual reports for each investment trust throughout 2000-2017. The data NED, female directors, substantial ownership, director's ownership, and remuneration were collected from the annual reports. On the other hand, the age and tenure of directors were computed using information from the website, Company Check. Fund age was acquired from the London Stock Exchange website. Other data such as shares outstanding, market price, liabilities, and dividends were acquired from the annual report and used in the computation of the control variables. The dummy variables include audit tenure where the auditor's tenure is longer than 20 years will be assigned with 1, otherwise 0. If the investment trusts carry out shares buy back from the market, it is assigned 1; otherwise, 0. The same control variables and dummy variables have been used as in the previous chapter.

Equation 2 Research model for performance measure (Discount)

$$\begin{aligned}
 DIS = & \beta_0 + \beta_1 NEDS + \beta_2 FEM_2 + \beta_3 LNAGE + \beta_4 LNTEN + \beta_5 DOWN + \beta_6 SOWN \\
 & + \beta_7 LNREM + \beta_8 LNREM + \beta_9 AUD + \beta_{10} SHARE + \beta_{11} LNM CAP \\
 & + \beta_{12} FUGE + \beta_{13} GEAR + \beta_{14} DIV + FUNDDUMMY + YEARDUMMY \\
 & + \varepsilon
 \end{aligned}$$

The variables used in the equation are as follows: DIS= Discount, BOARD= board size, NEDS= Non-executive directors, FEM_2= Female directors, LNAGE= Age (ln), LNTEN= Tenure (ln), DOWN= Director's ownership, SOWN= Substantial ownership, LNREM= Remuneration (ln), AUD= audit tenure, SHARES= share repurchase, AUD = audit tenure, SHARE = number of shares outstanding, LNM CAP= Market capitalization (ln), FUGE= Fund age, GEAR= Gearing, DIV= Dividend payout

Pooled Ordinary least Squares (OLS)

In this chapter, the sample consists of panel data for 123 equity-focused investment trusts between 2000-2017; thus, we deem pooled OLS regression to be appropriate. Figure 10 shows an overview of the corporate governance characteristics that will be used in this chapter along with the control variables and dummy variables. The performance measure in this chapter will be a discount. Since we are dealing with panel data, it is crucial to determine whether the fixed effect or random effect model will be suitable; to help with this selection we perform the Hausman test. Table 22 shows that the null hypothesis is rejected when the P-value is less than 5%, therefore the fixed effect model is appropriate to use. In alignment with this finding, we include both year and fund fixed effect in the regression.

Table 22 shows the results from the Hausman test

Dependent variables		Decision
DIS	Prob>chi2 = 0.0000	Fixed effect

In chapter 3, it was explained that for the OLS model to provide accurate results, some assumptions such as homoscedasticity and linearity must hold. Therefore, in this chapter, tests are run to detect whether the assumptions proposed are met; if there are any violations of these assumptions, then there would need to deal with them in an appropriate manner to avoid biased results. Table 23 shows the assumptions along with the relevant tests that have been utilized for the detection.

Table 23 Summary showing the assumptions for the OLS regression

Assumption	Detection/test	Is there a violation?	Solution
-------------------	-----------------------	------------------------------	-----------------

Normality	Shapiro-Wilk test Histogram	Yes	Logarithmic transformation
Homoscedasticity	Residual v/s fitted plot Breusch-Pagan test	Yes	Logarithmic transformation Robust standard errors Fund and year fixed effect dummy variables
Autocorrelation	Durbin-Watson test	No, the test does not detect first-order autocorrelation	
Multicollinearity	Correlation matrix Variance inflation factor (VIF)	No, since the correlation matrix did not provide any high correlation between the variables, and there was a low VIF	
Endogeneity	Wu-Hausman test	Yes	Use a considerable number of periods Lagged data Generalized method of moments (GMM)

Source: Chumney and Simpson (2006, pg. 101-103), Brooks (2008, pg. 129-174)

In the previous chapter, we discussed the assumptions in more detail, however, in this chapter only the findings are reported.

Assumption 1: Normality

Detection/test

Both the Shapiro-Wilk test (Table 24) and histograms (Figure 11) reveal that the variables are not normally distributed, since the P-value is less than 5% significance level

Table 24 Shapiro-Wilk test

Variable	Observations	W	V	z	Prob>z
DIS	2,214	0.80282	256.486	14.163	0.00
BSIZE	2,214	0.93	95.14	11.63	0.00
NEDS	2,214	0.91	122.43	12.28	0.00
FEM_2	1,968	0.98	28.25	8.49	0.00
LNAGE	2,214	1.00	5.25	4.24	0.00
LNTEN	2,214	0.98	28.41	8.55	0.00
DOWN	2,214	0.32	889.65	17.34	0.00
SOWN	2,214	0.98	23.48	8.06	0.00
LNREM	2,214	0.96	58.35	10.38	0.00
NONBRIT	2,214	0.86	186.48	13.35	0.00
AUD	2,214	1.00	3.86	3.45	0.00
SHARE	2,214	1.00	0.77	-0.67	0.75
LNMCAP	2,214	0.97	37.14	9.23	0.00
FUGE	2,214	0.84	211.69	13.67	0.00
GEAR	2,214	0.71	377.33	15.15	0.00
DIV	2,214	0.03	1257.41	18.22	0.00

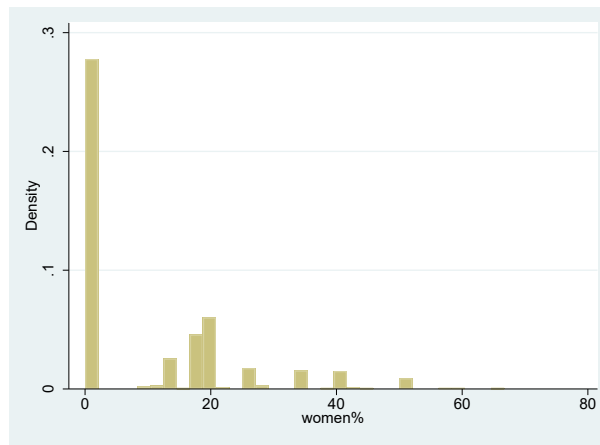
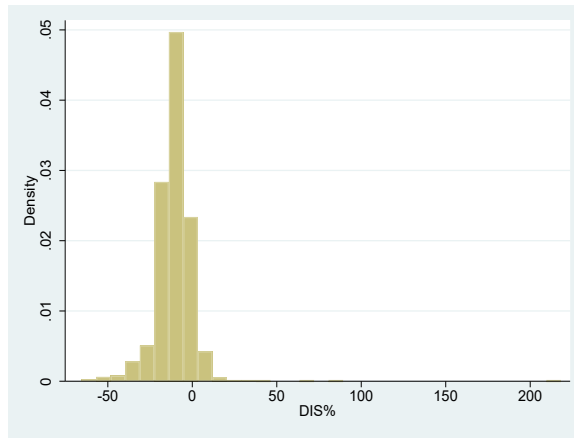


Figure 11 Histograms of Discount and female directors

Solution

Logarithmic transformation was carried out on some independent variables.

Assumption 2: Homoscedasticity

Detection/test

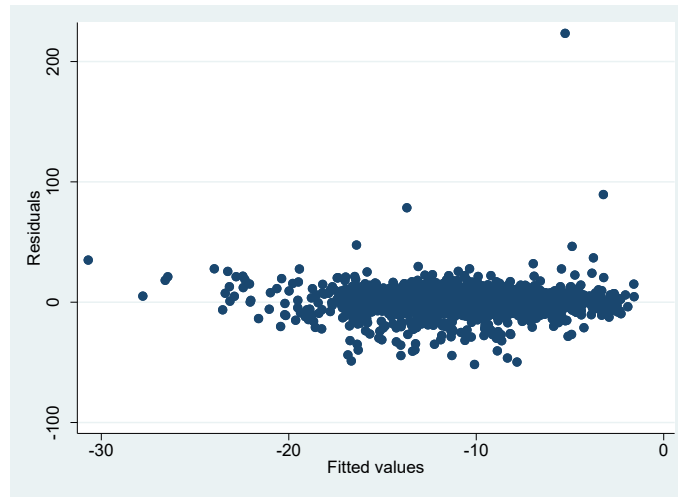


Figure 12 Residual v/s fitted plot for discount

Figure 12 shows that there is a problem of heteroscedasticity in the models. Table 25 shows the results from the Breusch Pagan test, which indicates that the P-value is less than 5% thus the null hypothesis is rejected and the presence of heteroscedasticity is accepted.

Table 25 Results from Breusch Pagan tests

Dependent variables	H0: Constant Variance	
DIS	Chi (1) = 19.87	Prob > chi2 = 0.0000

Solution

Some transformations were made to some variables and robust standard errors were used in the regressions. Furthermore, the inclusion of fund fixed effect and year fixed effect dummy variables would help control for unobserved heterogeneity.

Assumption 3: Autocorrelation/serial correlation

Detection/test

In the previous chapter, it was mentioned that when the d-statistic is more than 0.05, the null hypothesis which states that there is no autocorrelation is not rejected; which we observe in Table 26.

Table 26 Results from Durbin Watson Test

Dependent variables	Durbin-Watson d-statistic (15, 1968)	Decisions
DIS	0.5443494	No rejection of null hypothesis

Note: H0: no serial correlation

Assumption 4: Multicollinearity

Detection/test

It is deduced from the correlation matrix from Table 30 (section 4.5.2) that there was no high correlation above 0.6, indicating that there was no violation of the assumption. Furthermore, the VIF test as shown by Table 27 provided a VIF of 1.43 which also indicates that there was a multicollinearity problem.

Table 27 Test for multicollinearity using the VIF

Dependent variables	If VIF<10, no multicollinearity	Decision
DIS	Mean VIF 1.43	No multicollinearity

Assumption 5: Endogeneity

Detection/test

Table 28 Test for endogeneity using the Wu-Hausman test

Dependent variables	H0: Constant Variance	
DIS	F(1,1953) =2.973	(0.0847)

Solution

Generalized method of moments (GMM)

Table 28 indicates that there is an issue of endogeneity since the P-value is significant. It has been proposed that using the 2SLS method can help resolve the concern of

endogeneity and correlation between time-invariant variables and explanatory variables. When the 2SLS method is employed, the critical values obtained from the Stock-Yogo are much higher than the Cragg-Donald Wald F statistics which indicates the instrument. Consequently, it was deemed that an alternative method had to be utilized, similar to Mileva (2007) the Generalized Method of Moments (GMM) estimator was selected. Studies by Arellano and Bond (1991) and Blundell and Bond (1998) have helped develop the dynamic panel GMM estimator, this estimator has been designed to consider endogenous independent variables and also dependent variables whose value was dependent on its past realizations.

In this chapter, the market-based measure, discount, is utilized. It can be argued that the discount in subsequent periods will be dependent on the past values since directors and managers in investment trusts are actively seeking to minimize the deviation from the NAV. Therefore, if the directors are engaged in reducing discount, the value of discount in the next year would be affected; thus, we are dealing with dynamic data. A dynamic panel model can be used where the lag of discount will be utilized as one of the explanatory variables. Unlike the previous chapter, this section is dealing with dynamic data, therefore GMM is used; it is deemed to be a more robust methodology when dealing with potential endogeneity (Akbar et al., 2016). Therefore, the adjusted model to run the regression would be as follows:

Equation 3 Research model for performance measure (Discount) in the first differentiated form

$$DIS_{it} = \beta_0 + \beta_1 DIS_{i(t-1)} + \beta_2 NEDS + \beta_3 FEM_2 + \beta_4 LNAGE + \beta_5 LNTEN \\ + \beta_6 DOWN + \beta_7 SOWN + \beta_8 LNREM + \beta_9 LNREM + \beta_{10} AUD \\ + \beta_{11} SHARES + \beta_{12} LNMCAP + \beta_{13} FUGE + \beta_{14} GEAR + \beta_{15} DIV + \varepsilon$$

The variables used in the equation are as follows: DIS_{it} = Discount, $DIS_{i(t-1)}$ = Lagged discount, BOARD= board size, NEDS= Non-executive directors, FEM_2= Female

directors, LNAGE= Age (ln), LNTEN= Tenure (ln), DOWN= Director's ownership, SOWN= Substantial ownership, LNREM= Remuneration (ln), AUD= audit tenure, SHARES= share repurchase, AUD = audit tenure, SHARES = number of shares outstanding, LNMCP= Market capitalization (ln), FUGE= Fund age, GEAR= Gearing, DIV= Dividend payout

Several studies (Nguyen et al., 2014; Liu et al., 2014 and Arora and Sharma, 2016) have focused on the effect of corporate governance on the performance of firms, however, they have detected that there is a challenge to deal with endogeneity and have utilized the GMM estimator to rid of this problem.

Wintoki et al. (2012) focused on a large sample of 6000 firms to examine the effect of board structure on ROA and mainly concentrated on the following corporate governance characteristics: board size, independent directors, and CEO duality. The researchers argued that the investigation between corporate governance and performance is often burdened by endogeneity, consequently, it is unclear whether it is the performance that drives corporate governance. To deal with the potential apparition of endogeneity, the dynamic GMM panel estimator is selected for use. Similarly, Ullah et al. (2018) also highlighted that endogeneity can lead to inconsistent estimates and potentially lead to incorrect signs for the coefficients. The research investigates the effect of corporate governance characteristics on the performance of UK firms and uses several methods tailored for investigation; it infers that the results under OLS and GMM methods were different, which highlighted that there were some endogeneity problems.

Following Wintoki et al. (2012) and Nguyen et al. (2014), it is argued that the effect of corporate governance on firm performance should be tackled through a dynamic framework. Thus, the researchers also utilized the GMM estimator to investigate the effect of female directors, board diversity, and non-executive directors on Tobin's Q. This technique helps control for potential sources of endogeneity and applies internal instruments from the panel data set (Blundell and Bond, 1998). Suman and Singh (2020)

implemented both static and dynamic models to determine the effect of corporate governance on agency problems, which can ultimately affect the research and development expenditures. The authors consider a dynamic model as they argue that firms that have larger R&D may lead to more independent directors; thus, creating simultaneity bias. The Two-step system GMM is used, as the researchers find that it is more efficient than one step system GMM.

4.5 Descriptive statistics and correlation matrix

4.5.1 Descriptive statistics

Table 29 shows the descriptive statistics for the variables used in this chapter. Since the independent variables and control variables have been described in detail in chapter 3; the aim is to center the description on the dependent variable, discount.

Table 29 Summary statistics of the performance measure (discount), corporate governance characteristics, dummy variables, and control variables

Variables	Observation	Mean	Standard deviation	Minimum	Maximum
DIS	2,214	-10.90	11.37	-65.48	218.18
NEDS	2,214	97.09	10.57	22.22	100.00
FEM_2	1,968	9.78	13.26	0.00	66.66
LNAGE	2,214	4.09	0.07	3.81	4.32
LNTEN	2,214	2.04	0.31	0.00	2.94
DOWN	2,214	2.29	7.71	0.00	67.88

SOWN	2,214	34.83	20.72	0.00	93.74
LNREM	2,214	11.45	0.54	9.47	14.71
LNMCAP	2,214	23.37	1.36	16.67	26.98
AUD	2,214	0.83	0.38	0.00	1.00
SHARES	2,214	0.36	0.48	0.00	1.00
FUGE	2,214	47.44	40.12	1.00	149.00
GEAR	2,214	0.14	0.16	0.00	1.70
DIV	2,214	0.09	14.40	-599.00	260.00

Performance

Since investment trusts trade more often on a discount instead of a premium, this study uses the discount as a measure of performance. In the dataset, a negative figure represents a discount whilst a positive figure shows that the fund is trading at a premium. The summary above shows that on average investment trusts in this sample trade at a discount of 10%, which is quite a large deviation. When the deviation between the positive (premium) and negative (discount) deviation is further broken down, it is apparent that the discount is more prevalent with 89% of the observations.

F&C Private Equity Trust PLC (FPEO) had the greatest discount with -65% in 2008 and was further widened to 80.6% by the time the report was finalized. The discounts were linked with the uncertainty surrounding valuations and financing within the private equity sector in which the fund invested. On the other hand, British and American Investment Trust PLC (BAF) traded at a high premium of 218% in 2017, this was not a one-off as it traded at a premium of 84% in the previous year. The fund's ten largest holdings consist of six investment trusts out of which five trade at a discount of 5% or above; however, Morningstar (2018) recorded that the increase in gain is associated with their large holdings in Geron group which is in the biomedical sector.

4.5.2 Correlation matrix

The correlation matrix in Table 30 shows that there are low and medium relationships between the corporate governance characteristics and discount. The highest correlation has been found between the size of the investment trust and the remuneration of the directors (0.6023). This finding can be explained by the increase in the size of the fund would lead to a need for a larger board of directors whose total remuneration would also increase. This reasoning can also help explain the positive relationship between remuneration and fund age since it can be assumed that the older the fund the larger, they would get over time thus requiring a larger board.

When the focus is laid on the relationship of NEDs and remuneration, a negative and significant relationship (-0.2080) is observed and it can be seen as a benefit for the fund as fewer fees are being paid out. On the other hand, the relationship between the NEDs and substantial ownership is positive and significant (0.0788). From the proposed hypothesis, it would be assumed that larger substantial ownership would be beneficial to the fund. When the number of NEDs increase on the board, it potentially expands the network of the investment trusts, thus this might attract more institutional investors in the funds which can further enhance monitoring as they have a larger investment at stake compared to retail investors. There is also a negative correlation between NEDs and the director's ownership (-0.1713). This finding is puzzling since the presence of more directors should indicate more ownership; if it is the opposite it could translate in the lack of interest in acquiring shares in the funds hence weaker monitoring.

There is also a positive correlation between female directors and remuneration (0.2987) which leads to the assumption that as the number of women increases on the board remuneration also increases. However, it is speculated that the situation would be the contrary. It is assumed that although women are present on the board it does not necessarily translate in their presence on the remuneration committee; it can be argued that they possess a secondary role when remunerations are decided. The positive relationship between the size of the fund and female directors (0.2062) highlights that

larger fund would have a larger board thus have a better ability to enhance their composition by considering gender.

A negative relationship between discount and share repurchase is detected (-0.1383), which is expected since the retraction of shares on the market leads to a lower number of shares outstanding thus reducing the deviation from NAV. This is a mechanism that the board of directors in the investment trusts utilize to reduce the amount of discount in the funds. It can be thought that since the relationship is low, the variation in discount is not only explained by the share repurchase but also other factors. Lastly, it is noticeable that fund age has a negative relationship with audit tenure which we can infer to be a favorable indicator as it shows that auditors do not become entrenched and remain trustworthy to the shareholders.

The correlation matrix also includes the multicollinearity test carried out. It is presented as the VIF, with a VIF of less than 5 there is no indication of multicollinearity amongst the variables.

Table 30 The Pearson correlation matrix for the variables with discount

	VIF	DIS	NEDS	FEM_2	AGE	TEN	REM	SOWN	DOWN	AUD	SHARES	MCAP	FUGE	GEAR	DIV
DIS		1													
NEDS	1.27	-0.0287	1												
FEM_2	1.15	0.0543*	0.0226	1											
AGE	1.23	0.0383	0.1437*	0.0052	1										
TEN	1.20	0.0708*	-0.0224	-0.1226*	0.3101*	1									
REM	2.05	0.0510*	-0.2080*	0.2987*	0.0979*	-0.0237	1								
SOWN	1.09	-0.1060*	0.0788*	-0.0034	0.0427*	0.0810*	-0.0823*	1							
DOWN	1.24	-0.1073*	-0.1713*	-0.0671*	0.1393*	0.0893*	-0.1980*	0.0647*	1						
AUD	1.11	-0.0951*	-0.0817*	-0.1684*	-0.0755*	-0.0743*	-0.2009*	0.0660*	0.1096*	1					
SHARES	1.08	-0.1383*	0.0767*	0.012	0.0021	-0.0317	0.1894*	0.0722*	-0.1174*	-0.0666*	1				
MCAP	2.08	0.1471*	-0.0028	0.2062*	0.1152*	-0.1104*	0.6023*	-0.1986*	-0.2900*	-0.1962*	0.1620*	1			
FUGE	1.40	0.1287*	-0.1562*	0.1715*	-0.0530*	-0.0647*	0.3970*	-0.1606*	-0.0642*	-0.2099*	0.1188*	0.4528*	1		
GEAR	1.10	0.0204	-0.0219	0.021	-0.0874*	-0.1108*	-0.1679*	-0.0915*	-0.0317	0.0754*	-0.1185*	-0.1303*	0.0266	1	
DIV	1.00	-0.0041	0.0043	0.0071	0.0232	0.0036	-0.0022	0.0151	-0.0017	-0.0002	-0.0303	0.0094	0.0055	0.0028	1
Mean VIF	1.31														

Note: Results are based on 123 UK investment trusts between the periods of 2000-2017. The test is statistically significant at 5%, a star (*) appear next to the correlation coefficient. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.6 Results and analysis

In this section, we analyze the results obtained through the regression using the GMM estimator and discuss the link between corporate governance and discount through the agency theory lens. Throughout this study, we have utilized the term discount to define the deviation of share price from NAV, the shares of investment trusts are more commonly traded at a discount (share price < NAV) rather than premium (share price > NAV). Table 31 shows the results of the effect of various governance characteristics, it can be deduced that when there is a positive coefficient, it is indicative that discount is reduced, and the premium is enhanced therefore presenting a positive effect. On the other hand, a negative coefficient confirms that discount is getting wider.

Before we proceed to analyze the findings of the regression, we need to consider a few statistics since we used the GMM estimator. Firstly, we observe that the number of instruments is lower than the number of groups, as a rule of thumb Roodman (2009) mentioned that the number of instruments should not outnumber the number of individuals. When the number of instruments is too large, GMM becomes inconsistent. The AR (2) is not significant which means that the model is not suffering from second-order serial correlation and the lagged of the dependent variables are not endogenous.

Table 31 Regression using GMM and using discount (market-based performance measure)

	(1) OLS	(2) GMM
DIS (t-1)		0.264*** (0.0802)
NEDS	-0.00104 (0.00386)	-0.0222*** (0.00654)

FEM_2	-0.000458** (0.000229)	0.000537 (0.000772)
LNAGE	0.179** (0.0912)	-0.393* (0.236)
LNTEN	0.0156 (0.0119)	0.0864*** (0.0232)
LNREM	-0.0586*** (0.0144)	-0.00240 (0.0238)
SOWN	-0.0226* (0.0135)	-0.300*** (0.0877)
DOWN	0.101 (0.0835)	-0.116 (0.176)
AUD	0.00622 (0.00708)	-0.0661** (0.0320)
SHARES	-0.00380 (0.00407)	-0.0700*** (0.0180)
LNMCAP	0.0391*** (0.00703)	0.0322** (0.0131)
FUGE	0.00459** (0.00215)	0.00115* (0.000589)
GEAR	0.0889 (0.0606)	-0.0772 (0.0949)
DIV	-0.000147 (0.000113)	-0.000303 (0.000754)
Constant	-1.180*** (0.357)	0.838 (0.898)
Observations	1,920	1,920
Fund FE	YES	YES
Year FE	YES	YES
R-squared	0.441	
AR(1) test (p-value)		0.013
AR(2) test (p-value)		0.201
Hansen test (p-value)		0.00
Sargan test (p-value)		0.00
Number of Instruments		50.00

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: DIS_(t-1): Discount lagged by 1 period, NEDS = Non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout. AR(1) and AR(2) are tests for first

order and second order serial correlation in the first differenced residuals. The Hansen test is used for over identification whilst the Sargan test helps determine whether instruments are correctly specified.

NEDs

The results show a negative and significant relationship between NEDs and discount ($\beta = -0.0222$, $p < 0.001$) as shown by Table 31 column 2, this shows that as the board includes more NEDs it helps reduce the discount in the investment trusts thus enhancing performance and reducing agency conflicts. This finding corroborates with the results from Mura (2007) and Khan et al. (2019) where both detected a positive relationship between NEDs and the market-based performance, Tobin's Q for the UK and Malaysian firms respectively. Therefore, there is a possibility that investment trusts can capitalize on the experience of these directors and their link to the external business. Mira et al. (2019) argued that over the past years the role of NEDs in the UK has significantly changed and the latter has been expected to enhance their monitoring to ensure that value-maximizing decisions are taken in the firms. The authors further added that good monitoring of the NEDs result in an enhancement and ensure career progression; thus, NEDs would be incentivized to be effective monitors.

Age of directors

The hypothesis proposed that the presence of older directors on the board will be detrimental to performance as it will lead to a larger discount. Our result supports the hypothesis as we witness a negative relationship between age and discount ($\beta = -0.393$, $p < 0.1$) as shown by Table 31 column 2. This indicates that in the presence of older

directors' discount grows bigger which leads to worse performance. Previous studies by Mahadeo et al. (2012) and Talavera et al. (2018) focused on age diversity in firms and banks however the literature remains scant for the effect of age on the performance of investment trusts. The present research's findings relate to previous studies by Hafsi and Turgut (2013) and Ali et al. (2014) who also observed a negative impact of age on performance and profitability. It should be noted that when discount is enlarged, performance worsens.

Tenure

The results from Table 31 column 2 show a positive relationship between tenure and discount ($\beta = 0.0864$, $p < 0.01$), this indicates longer-tenured directors are less capable of narrowing the gap between share price and NAV. Bennouri et al. (2018) detected a similar relationship between tenure and performance arguing that the busyness of the directors outweighs the expertise benefits. Vafeas (2003) discussed the Expertise hypothesis where longer tenure directors amass experience over time thus acting as a better monitor. However, our sample consists of NEDs and the majority holds multiple directorships across various firms and funds; it can be argued that they do not dedicate ample time to restrict behavior that can negatively affect shareholders.

Substantial ownership

We observe a negative and significant relationship between substantial ownership and discount ($\beta = -0.3$, $p < 0.01$) as shown by Table 31 column 2. It highlights an

enhancement in performance due to the narrowing of the gap between NAV and shares price. Mardnly et al. (2018) found a positive relationship between institutional ownership and EPS where they argued that the firms in their sample were subsidiaries of foreign companies, thus the parent companies would likely be exerting high control on the firms' activities. The investment trusts in this study typically outsource activities such as portfolio management, administration, and accounting (AIC, 2019). It has been observed that amongst the substantial interest in the funds in this sample, there are investment companies and banks who arguably, would have a significant influence by monitoring the activities of management closely. This would result in lower agency costs as the institutional investor would behave as monitors.

Audit tenure

It was argued that the higher the audit tenure the more entrenched the auditors might become due to their close affiliation with the investment trusts however the result does not support the argument as we witnessed a negative relationship ($\beta = -0.0661$, $p < 0.05$) as shown by Table 31 column 2, indicating that the discount is reduced. The current study proposes that longer audit tenure would affect performance adversely due to a deteriorating audit quality since the auditors can develop a potential closeness with the agents in the investment trusts. However, the opposite result where the discount is reduced when audit tenure increases are observed. Al-Thuneibat et al. (2011) argue that if the auditors do not have enough specific knowledge during the early years it lowers the likelihood of detecting material misstatement. Similar to Boone et al. (2008), it is arguable that when tenure increases the audit has the opportunity to gain a sufficient understanding of the fund's system and operations.

Shares repurchase

The results show a negative and significant relationship between share repurchase and discount ($\beta = -0.07$, $p < 0.01$) as shown by Table 31 column 2 indicating that performance is enhanced. The action of shares buyback helps lower discounts because when shares are retracted from the market it helps increase the price of the shares which lowers the deviation from the NAV. It can be debated that along with this buyback mechanism investors may also perceive this move as favorable for the fund, which can lead to more investors buying in the fund thus further enhancing the price. Kraussl et al. (2018) discussed discount control mechanisms such as share repurchases, they argue that skilled managers are more likely to carry out repurchases to control deviation rather than poorly performing managers. This finding can be related to the free cash flow hypothesis (Jensen, 1986) whereby the reduction of free cash flow from managers restricts opportunistic behaviors.

Market capitalization

Table 31 column 2 shows a positive relationship between market capitalization and discount ($\beta = 0.0322$, $p < 0.05$). This result shows that larger firms experience a larger deviation from the NAV. It can be argued that larger investment trusts may not be investing in innovation as much as smaller funds thus affecting their performance. Drucker (1999) argued that medium-sized firms do not possess the flexibility and dynamism that smaller firms possess. Furthermore, larger investment trusts have greater obligations to pay dividends to investors, and this payment prevents the funds from using different discount-reducing strategies such as share repurchase.

Fund age

The age of the investment trusts and discount have a positive and significant relationship ($\beta = 0.00115$, $p < 0.1$) which shows that older funds are unable to reduce discount instead there is a worse performance for these funds. This finding is like Souther (2018) where he observed a negative relationship between fund age and premium in closed-end funds. It can be argued that younger investment trusts may be more adaptable compared to their older counterparts (Grazzi and Moschella, 2018) and may not perform as well due to their long-term strategy brought along by the founders (Block et al., 2011). Pastor et al. (2015) found that younger funds have been able to provide better skills which have led to outperformance compared to older funds.

4.7 Robustness tests

In this section, the robustness of the model used in the previous section will be tested. Similar to the previous chapter, three different robustness checks will be carried out: the performance surrounding different periods of the financial crisis and by excluding the financial crisis years from the sample; allowing a better sense of whether the crisis does affect the level of corporate governance or not. And lastly, quantile regression is applied to focus on three quantiles (25th, 50th, and 75th). Table 32 - Table 34 shows the results from the robustness test and below the analysis is also provided.

4.7.1 Performance around the financial crisis (2008)

Table 32 shows the regression results in three different periods: pre-crisis (2000-2006), during the crisis (2007-2009), and post-crisis (2010-2017). We observe that during the period of the financial crisis there were no significant findings, this can indicate that during the crisis corporate governance may not have an impact on performance due to the volatile market. Grove et al. (2011) argued that the relationship between corporate governance and performance can differ due to the unique environment during the financial crisis. The presence of more NEDs on the board helped reduce discount as shown by the main findings (Table 31) however we do not see any significance during the different time frames surrounding the financial crisis.

The relationship between age and discount is positive after the crisis ($\beta = 0.281$, $p < 0.05$) as shown by Table 32 (Column 6), this finding corroborates with the main results. The findings on age may be consistent with the Dunning-Kruger effect, which refers to a cognitive bias in which people overestimate their talents. We can argue that if the directors

overestimate their capabilities, particularly in the aftermath of a crisis, it can lead to unfavorable actions that can deteriorate performance. The relationship between discount and remuneration ($\beta = -0.0739$, $p < 0.01$) as shown by Table 32 (Column 1) supports the proposed hypothesis. This indicates that when directors are presented with a larger remuneration, they are encouraged to work harder to reduce discount, as we observe discount is reduced by 7.39% when remuneration increases.

There is a negative relationship between female directors and discount at different period of time which indicates that the presence of women in investment trusts help reduce discount. Table 32 (column 2) shows that there is a decrease of 0.21% in the current discount when a female director has added two years ago on the board ($\beta = -0.00210$, $p < 0.001$). This observation can be supported by a report from McKinsey (2008) whereby they found that women adopted five out of nine leadership behaviors during the crisis that positively affected the crisis. In this study, it can be argued that the female directors that were hired during the crisis (2007-2009) helped improve the performance post the crisis (2010-2017).

Table 32 Regression with fund and year fixed effect using discount (market-based performance measure) around the financial crisis

	(1) OLS DIS 2000-2006	(2) OLS DIS 2007-2009	(3) OLS DIS 2010-2017
NEDS	0.00323 (0.00442)	0.00323 (0.00442)	-0.000389 (0.00647)
FEM_2	-0.00210*** (0.000626)	-0.00210*** (0.000626)	-0.000603* (0.000327)
LNAGE	-0.0559 (0.104)	-0.0559 (0.104)	0.281* (0.163)
LNTEN	0.00901 (0.0211)	0.00901 (0.0211)	0.0103 (0.0158)
LNREM	-0.0739*** (0.0212)	-0.0739*** (0.0212)	-0.0252 (0.0203)
SOWN	-0.0559*	-0.0559*	-0.0547**

	(0.0291)	(0.0291)	(0.0267)
DOWN	0.0789	0.0789	0.215**
	(0.143)	(0.143)	(0.103)
AUD	0.00769	0.00769	-0.0153*
	(0.0125)	(0.0125)	(0.00914)
SHARES	-0.00826	-0.00826	-0.0119*
	(0.00630)	(0.00630)	(0.00714)
LNMCAP	0.0556***	0.0556***	0.0370*
	(0.0158)	(0.0158)	(0.0198)
FUGE	0.0109***	0.0109***	0.00540
	(0.00338)	(0.00338)	(0.00485)
GEAR	-0.0673***	-0.0673***	0.158
	(0.0243)	(0.0243)	(0.137)
DIV	-0.000157***	-0.000157***	0.000214*
	(4.91e-05)	(4.91e-05)	(0.000112)
Constant	-0.402	-0.402	-1.917***
	(0.529)	(0.529)	(0.653)
Observations	600	600	840
R-squared	0.746	0.746	0.641
Fund FE	YES	YES	YES
Year FE	YES	YES	YES

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: DIS: Discount, NEDS = non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

4.7.2 Exclusion of the financial crisis period (2007-2009)

Table 33 shows the regression result when the crisis periods are excluded from the regression, it can be observed that the relationship between discount and substantial ownership ($\beta = -0.0433$, $p < 0.001$) from Table 33 (Column 2) support the main results. It was expected that large shareholders would more likely intervene if the

investment team or board of directors are not acting accordingly. The result shows that when there are more substantial ownership discount is reduced by 4.33% due to the intervention of these large shareholders. Investment trusts such as the City of London Investment trust (CTY) had a substantial interest of 3.46% in 2007 in Blackrock Latin American Investment Trust, their ownership increased to 28.3% in 2009. When these shareholders take on an activist role it helps the investment trusts.

0.149

While we found that substantial ownership helps lessen discount, the same cannot be stated for the directors' ownership. Table 33 column 2 shows a positive relationship between discount and director's ownership ($\beta = 0.149$, $p < 0.05$), it could be argued that the directors' ownership in investment trusts is too low, preventing them from tying their interest to the trust. We also detect a positive relationship between the tenure of the directors and discount ($\beta = 0.0251$, $p < 0.05$) as shown by Table 33 column 2, which corroborates with the main finding. Ng and Feldman (2013) find that longer tenure leads to employees becoming uninspired and unmotivated. It can be argued that the knowledge accumulated by the directors on the board with long tenure is offset by the lack of motivation to decrease the discount level.

Table 33 Regression with fund and year fixed effect using discount (market-based performance measure) with the exclusion of the financial crisis period (2007-2009)

	(1)	(2)
	OLS	OLS
	DIS	DIS
NEDS	-0.000211 (0.00447)	0.000126 (0.00462)
FEM_2	-0.000401* (0.000225)	-0.000386* (0.000228)
LNAGE	0.143 (0.105)	0.150 (0.106)
LNTEN	0.0247* (0.0148)	0.0251* (0.0149)

LNREM	-0.0523*** (0.0146)	-0.0549*** (0.0150)
SOWN	-0.0471*** (0.0137)	-0.0433*** (0.0141)
DOWN	0.149* (0.0882)	0.149* (0.0895)
AUD		0.00127 (0.00682)
SHARES		-0.00546 (0.00464)
LNMCAP	0.0314*** (0.00686)	0.0318*** (0.00700)
FUGE	0.00504** (0.00213)	0.00512** (0.00219)
GEAR	0.0968 (0.0680)	0.0978 (0.0682)
DIV	-8.90e-05 (0.000114)	-9.00e-05 (0.000111)
Constant	-0.924** (0.412)	-0.938** (0.413)
Observations	1,476	1,440
R-squared	0.425	0.425
Fund FE	YES	YES
Year FE	YES	YES

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: DIS: Discount, NEDS = non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

4.7.3 Quantile regression

Table 34 shows the results for the regression at three different quantiles, although there is significant across each quantile for several variables, the same cannot be said for the magnitude of the relationship. It can be argued that corporate governance has an influence on a medium and high level of discount, when the discount is as high as 65% it may trigger

unsavory responses from investors, therefore the board would attempt to reduce the larger discount. We hypothesized that longer tenure would lead to poor performance, following a report by MSCI (2015) on entrenched boards based on tenure, they define entrenchment when tenure exceeds 15 years for a certain number of directors; this reasoning of long tenure applies in this study. We observe positive and significant relationships are detected between tenure and discount in the upper ($\beta = 0.0330$, $p < 0.001$) and lower quartile ($\beta = 0.0161$, $p < 0.05$), which show that longer tenure leads to poor fund performance.

We observe that the results for several corporate governance variables such as NEDs, tenure, substantial ownership, and director's ownership (Table 34) corroborate with the main findings. When observing the ownership of the directors, there is a negative relationship at the lower and medium quantiles (0.25 and 0.5), these results support the main findings and also indicate that when the director's interests are tied to the investment trusts they are more likely to help the enhance the performance as shown by the negative relationship between discount and director's ownership ($\beta = -0.286$, $p < 0.001$) shown in Table 34 (Column 1). The lack of significance in the upper quantiles could indicate that when the discount is too significant, having a higher director's ownership does not improve the discount, but rather worsens performance. As a result, we might argue that when the discount is too wide, a range of corporate governance mechanisms is required to aid remedy performance.

Table 34 Regression with fund and year fixed effect using discount (market-based performance measure) at three different quantiles

	(1)	(2)	(3)
	OLS	OLS	OLS
	DIS	DIS	DIS
	0.25	0.5	0.75
NEDS	-0.00423* (0.00246)	-0.00378* (0.00203)	-0.00126 (0.00282)
FEM_2	0.000458** (0.000208)	0.000413** (0.000172)	0.000347 (0.000239)

LNAGE	0.0189 (0.0412)	0.0321 (0.0341)	-0.0286 (0.0474)
LNTEN	0.0161* (0.00921)	0.0123 (0.00761)	0.0330*** (0.0106)
LNREM	-0.0387*** (0.00685)	-0.0308*** (0.00566)	-0.0136* (0.00786)
SOWN	-0.0101 (0.0128)	-0.0226** (0.0106)	-0.0540*** (0.0147)
DOWN	-0.286*** (0.0344)	-0.206*** (0.0284)	0.0278 (0.0395)
AUD	0.00376 (0.00668)	0.00332 (0.00552)	0.0129* (0.00767)
SHARES	-0.00198 (0.00522)	-0.00579 (0.00431)	-0.00319 (0.00599)
LNMCAP	0.0303*** (0.00275)	0.0185*** (0.00227)	0.00398 (0.00316)
FUGE	9.75e-05 (7.48e-05)	7.74e-05 (6.18e-05)	0.000274*** (8.59e-05)
GEAR	-0.0547*** (0.0171)	-0.00831 (0.0141)	-0.0120 (0.0196)
DIV	-0.000238 (0.000180)	-0.000106 (0.000149)	3.16e-05 (0.000206)
Constant	-0.504*** (0.166)	-0.315** (0.137)	0.0705 (0.191)
Observations	1,920	1,920	1,920
Fund FE	YES	YES	YES
Year FE	YES	YES	YES

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: DIS: Discount, NEDS = Non-executive directors, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNREM = remuneration, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

4.8 Conclusion

The current studies have attempted to discover the cause of the existence and persistence of the discount anomaly found in closed-end funds. By focusing on both behavioral finance and traditional finance; there has not been any consensus on the factor (s) that is leading to the deviation. In this study, we embark on the focus on corporate governance and its effects on the performance of investment trusts, which is one of the main types of closed-end funds in the UK. It was deemed appropriate to focus on the agency theory due to the nature and structure of these funds; the results deducted that corporate governance does have some accountability on the presence of discount, especially since one of the main responsibilities of the board of directors is to monitor the discount level in the fund.

The results from the main findings confirm that when a board is fully composed of NEDs, there is a positive outcome on premium, which means that it narrows the discount. This finding was justified due to the independent nature of those NEDs who do not possess conflicts in their duties. However, in the quantile regression, it is seen that the board tends to tackle smaller discounts more than larger discounts, the results infer that discount at a certain level cannot be reduced through only good corporate governance. It is also important to comprehend that if the board chooses to tackle smaller discounts, it can help prevent a larger deviation in the share price.

The results for director age contradict the hypothesis; we expected that the presence of older directors would result in a larger discount, but we found the opposite. This demonstrates that these directors' monitoring responsibilities are unaffected by their age. Ultimately, all investment trusts should strive to have a board of directors that can keep the investor's best interests at the forefront. It is not merely a matter of reaching a quota; rather, board members should be diverse in terms of age and tenure.

CHAPTER 5: THE EFFECT OF CORPORATE GOVERNANCE ON INVESTMENT TRUSTS' FEES

5.1 Introduction

The case of *Gartenberg v. Merrill Lynch Asset Management (1983), Inc.* drew attention to the fees charged by investment funds. It was revealed that often exorbitant fees are charged to the investors, but they were not necessarily justified by the services provided to the investors. Henderson (2010) reported that between 1983-2010 around 150 cases were filed against fund advisors in regard to excess fees. Although no verdicts were in favor of the plaintiffs; this highlights that the matter of high fees payment is a long and perpetual debate. Many investors remain convinced that managers tend to be opportunistic, whereby they charge higher fees without carrying out extensive research to enhance portfolio selection, which agrees with the agency theory.

Throughout the years, investors have believed that the boom in investment funds in the market would stimulate a decrease in fees. However, the opposite ensued, it has been argued that increased innovation and low concentration in the funds have led to immunity to competition, therefore, the higher fees were necessary (Habib and Johnsen, 2016). Flood (2019c) reported that with a greater appetite for cheaper funds, the fund industry saw a rise in the creation of newer funds with greater affordability rather than the lowering charges of the existing ones. The fees paid into European equity funds have moved from 1.49% (existing funds) to 1.29% (new funds) whilst the fees for bond funds fell from 0.98% to 0.79%.

One of the premises of investors' opposition to high fees, is the belief that investment managers possess an unwillingness to carry out their duty to engage in maximizing the value of the capital. Consequently, those fees affect their return. Berk and Green (2004) argued that in an efficient market, the management fees are irrelevant as all investors

possess the same information; and that the return that investors receive is dependent on the investments made by the fund managers. It can be argued that investors hold this type of assumption due to the lack of actual knowledge of the role of the managers, Schroders (2016) pointed out that when providing investors with a set of descriptions, only 37% out of 20,000 investors selected the correct answers.

This chapter has the aim to focus on investor fees since this is a critical aspect that potentially dictates where an investor is considering investing. Although these funds typically charge lower fees than their counterparts, it is also important to consider that the dominance of discounts along with the fees can impact performance simultaneously. The goal is to uncover whether corporate governance is connected to the fees charged by investment trusts.

5.2 Literature review

Investors can have access to investment trusts through the stock exchange in a similar manner to listed companies, relative to stock funds offering a more cost-effective alternative due to decreased dealing costs. Investors are also faced with greater diversity in various assets at a lower cost. However, since the investments of the funds are delegated to investment managers, investors incur an annual management fee. They benefit from the expertise and time of the managers in exchange for a fee. Along with fees payable to managers, investors are faced with a range of various other charges which will be explored below. These funds can be different for different investment funds.

Table 35 shows the main fees charged by a selected few UK funds all focusing on the same theme, Europe (Including the UK). It shows that some funds, especially open-end funds have several charges along with their ongoing charges, the extra charges are sometimes either linked to the performance of the funds or active management. Although

Figure 15 indicates that investment trusts had a reduction in fees over the years, Table 35 indicates that it is not necessarily the lowest as compared to its peers focusing on investment in the same sector. When comparing to ETFs and index trackers, the latter possesses more passive strategies, whilst investment trusts tend to be slightly more active.

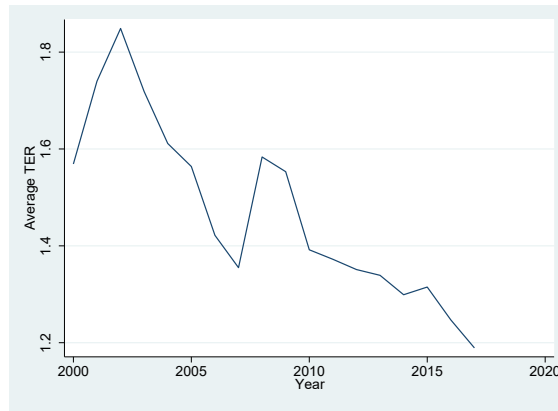


Figure 13 Average total expense ratio over the years

Table 35 Fees charged by a selection of UK closed-end funds and open-end funds focusing their investment on Europe (Including UK)

Fund name	Legal structure	Ongoing charge in 2019	Front end load
Allianz Europe Equity Growth	SICAV	0.99%	2.00%
JPMorgan Funds - Europe Strategic Value Fund	SICAV	1.72%	5.00%
Standard Life TM Pan European	Unit trust	0.81%	7.50%
BlackRock Greater Europe IT	Closed-end fund	1.08%	-
Fidelity European Values PLC	Closed-end fund	0.88%	-

Fund name	Legal structure	Ongoing charge in 2019	Front end load
Henderson European Focus Trust	Closed-end fund	0.84%	-
iShares MSCI Europe UCITS	ETF	0.12%	-
Amundi ETF MSCI Europe Banks UCITS	ETF	0.25%	-
Lyxor Core STOXX Europe 600	ETF	0.07%	-

Note: Ongoing charge obtained from Morningstar and front-end load is obtained from Financial Times, the ongoing charge includes management fee

The reduction in the fees for the investment trusts in this study could be associated with increased competition in the market. The rise of innovative investments with the likes of artificial intelligence and smart beta has been embraced in ETFs more readily and has attracted investors with fresh ideas. Whilst the announcement of Brexit in 2016, has continued to have a fear effect on investors, investments already held uncertainty, but Brexit made it even more doubtful. The property funds in the UK have been experiencing large redemption of almost £200 million (Mooney et al., 2019).

The average total expense ratio decreased by 22.51% over the 18 years; it can be argued that the active participation of the board of directors in the monitoring of fees has led to this reduction, this relationship will be further explored later. However, contradictory finding for the average management fee is detected, it can be observed that there is an upward movement in the fee. The average management fee is £2,713,936, and the increase from 2000 to 2017 has only 2.9%. Those management fees tend to be high and usually unavoidable due to the active participation of the managers, reducing the fees could act as a demotivation for managers due to the lack of compensation.

Although investors would be content with the descent of the fees, it would be futile if performance is staying stagnant or decreasing, as presented by thriving discounts. Therefore, we aim to explore the relationship between fees and corporate governance as measured by various characteristics such as the board of directors. since the involvement

of the board will allow us to understand whether these agents are actively attempting to curtail fees which could be beneficial to the investors.

5.2.1 Total Expense Ratio (TER)

The TER is known also as an ongoing charge. It refers to the annual fee charged to investors for investing in the fund. This fee typically includes the management fee, director's remuneration, audit fee, and is expressed as a percentage of the net asset value over the year. Some investment trusts also offer a performance fee to the investment managers, which is based on their outperformance or meeting certain conditions regarding performance. It has been observed that several funds such as Perpetual Income & Growth, had scrapped their performance fees (AIC, 2018), in an attempt to increase competitiveness. Although investment trusts had an advantage over lower fees compared to unit trusts; the emergence of newer funds such as ETFs with much lower fees could endanger investors' retention.

It has also been suggested that the withdrawal of these performance fees could be associated with the poor performance of the fund managers. The presence of continuous discount could potentially expose the lack of outperformance from managers, or even the ability to match the performance benchmark. In this study, the presence of a fee as a mechanism to ensure well-governed investment trusts is considered, where the board of directors guards the interest of the shareholders by monitoring the performance. Since the TER is usually lower for investment trusts, the managers would be motivated to augment the performance of the funds to also boost their compensation.

Management fee

The management fee is paid based on the net asset of the investment trust and is usually charged at 30% to the revenue account and the remaining to capital reserves (Aberforth Smaller Companies Trust, 2018). In this study, the average management fee is £ 2,713,936, which represents 66% of the total fees⁴⁰. Along with performance fees, some investment trusts have also been reducing the management fee in an attempt to deal with poor performance. With a discount level of 5% and worse since 2015 Jupiter US Smaller Companies experienced a reduction of 22%, from £1,508,000, in 2015 to £1,169,000 in 2019. The AIC reports that since 2013, around 39% of investment trusts have embarked on the tiered fees which apply to management fees, where the fees are charged on a sliding basis which means fees decrease as asset increases⁴¹.

Other charges

The TER also includes other administrative expenses along with the management fee, these expenses are anticipated to be recurrent in the foreseeable future and relate to the operations of the fund such as audit fees, director's fees, and marketing. There are also expenses that the funds incur but these are excluded from the calculation, for instance, interest costs which relate more to the capital expense rather than the operational expense. The trail commissions are also excluded due to the uncertainty in the amount involved and legal fees for a one-off corporate transaction. Investors are also charged by their

⁴⁰ Total fees include management fees, director's fees, auditor's fees, and administrative and other expenses.

⁴¹ AIC (2018c)

stockbrokers for facilitating their trades, these fees vary based on the trade carried out and the platform used; there is no uniformity and therefore are excluded in this study.

5.2.2 Literature review on fees

Dellva and Olson (1998) argued that payment of fees can be justified if it helps performance increase, especially when search costs are required which can ultimately help in the improvement of risk-adjusted performance. In 2002, investors in mutual funds paid an estimated \$3.6 million and \$2.8 million respectively in front-end and back-end loads; along with \$8.8 million in distribution channel fees (Bergstresser et al., 2009). Although investors are aware that these high fees affect their return over time, they still choose to pay them for better management of their capital. Whilst in some cases, they are not fully aware of all the fees they incur over one year.

The varying choices of popular investment funds have been discussed in detail throughout Chapter 2. In this chapter, the existing literature is scanned to gain information about the types of funds where fees have been studied. Funds can be classed into two major types: open-end funds and closed-end funds, throughout the literature as shown below, most studies have focused on fees in mutual funds which are open-end funds where investors can invest and redeem shares at any time. These funds must be prepared to deal with high redemption therefore they choose to invest in highly liquid investments.

Researchers have been keen to observe the fees of mutual funds since these funds have been the most popular form of pooled investment fund amongst investors. On the other hand, the literature has remained barren for the study of fees for a closed-end fund such

as investment trusts. Thus our investigation aims to contribute to the literature on the UK fund fees.

Mutual funds

Ferris and Chance (1987) proposed that as funds get older, there is a learning curve effect allowing them to seek greater efficiency. This leads to greater turnover due to the greater frequency of purchase and sale of securities from the portfolios, which affect the frequency of fees being charged as the composition of the portfolios changes. Grossman and Stiglitz (1980) found that the acquisition of better information by informed investors contribute to higher cost, which eventually results in both informed and uninformed investors expecting the same return after fees are considered. However, when the researchers extended their hypothesis to actively managed funds, they noticed that the active nature of these funds acquired information more efficiently, thus reducing the cost ratios.

Glode (2011) argues that if fund managers can provide alphas during economic downturns, they should be able to charge higher fees. A similar study by Kosowski (2011) finds that there is a higher abnormal return during recessions relative to expansionary cycles; using the Carhart four-factor model, it was shown that alpha was -0.521% during boom periods and 0.801% during recessions. Berk and van Binsbergen (2012) conclude that on average \$2 million of value is added to portfolios by the fund managers. The persistence of this value creation is also supported by the argument of the skills of active managers and the ability to time the market (Kacperczyk et al., 2014).

There are findings encouraging doubts about the active managers' supposed skills and the higher fees charged do not seem justifiable. Barras et al. (2010) use a new measure, False Discovery Rate (FDR) in an attempt to discover the proportion of funds with alphas. It was found that only 2.1% of US equity funds earned positive alpha whilst the majority of

76.6% had an alpha of zero. Wermers (2000) also detects outperformance relative to the S&P 500 index fund, however net of fees and after certain transaction costs; the return of the portfolio falls behind. The performance of actively managed funds from 27 countries had a negative relationship with fees, however, there were significant results only for some non-US funds (Ferreira et al., 2012).

Despite the payment of high fees, shareholders are receiving a lower return than was anticipated. Studies by Petajisto and Cremers (2009) and Petajisto (2013) focus on "closet indexers." These funds are declared to be active funds, but the composition of their portfolio reflects the benchmark that they follow. Mauck and Salzseider (2015) also detected that mutual funds charging higher fees had similar payouts than cheaper funds, and investors chose to diversify their portfolios by holding several high fee funds.

Mutual funds have expanded in the creation of multiple share classes which are targeted at different types of investors such as smaller retail investors or institutional investors; leading to the variable fee structure (Nanda et al., 2009). This disproportion in the fees has led to the creation of conflicting interests between the investors and the mutual funds. Adams et al. (2012) proposed that if more funds lean towards the adoption of multi-share offerings, it will create some form of competitiveness which will lead to the search costs being lowered thus investors will benefit. It will also enable investors to move from one fund to another without facing varied search or switching costs.

It has been argued that the presence of higher fees in various funds is related to fund switching costs and non-portfolio services provided to investors, such as investment advice (Hortacsu and Syverson, 2004), which has caused fee dispersion. Whilst Choi et al. (2010) allocated a hypothetical capital to 730 subjects to analyze their investment choices bearing the fee into consideration. It was found that nearly 54% of investments were made in the most expensive portfolios despite the elimination of non-portfolio services. Cooper et al. (2020) detected a negative relationship between fees and net alphas and suggested that fee dispersion is present amongst funds due to varied investor perspectives.

From the pool of available literature, it can be argued that the presence of internal monitors such as the board of directors can help curtail fees. Parida and Tang (2018) proposed that the competitive mutual fund market alone cannot help decrease the fees charged by the funds, they detected higher fees in more competitive segments. He et al. (2018) explored Canadian mutual funds, it is pointed out these funds have two different governance mechanisms (corporate and trust), they explore the effect of these two mechanisms on the fees. The mentioned study further explored the effect of board characteristics such as board size, board diversity, and board independence, on the corporate class funds. The results show that smaller boards and a higher percentage of independent directors were more likely to charge a lower fund fee; the findings supported the agency theory over the stewardship theory.

Although the current thesis aims to tackle the fees from a corporate governance perspective, this study differs from He et al. (2018) as the Canadian mutual funds and UK investment trusts have different governance structures. Furthermore, the highlight is also placed on other characteristics such as age, tenure, remuneration, and ownership of the directors.

Hedge funds

Although hedge funds and mutual funds share the same ideology of pooled capital from investors to make investments, those funds are dissimilar in certain characteristics such as compensation and the use of leverage and derivatives. Guasoni and Obloj (2016) studied the incentives of management, especially the performance fee, which is usually based on the fund's profits. They found that these fees as compared to regular fees have risk-shifting effects thus affecting the portfolios. They also detected the presence of higher performance fees when there was greater use of leverage. On average when fees are 10%,

the average borrowing is only 17%, whereas when fees rise to 25% the leverage jumps to 99%.

Schmid et al. (2013) found that some hedge fund managers have been proving themselves by delivering consistent alpha throughout the years, and therefore the latter can justify their high-performance fees. However, Bloomberg reported an estimated amount of \$25.2 billion being drawn from hedge funds in 2016, which was the largest withdrawal by investors since the financial crisis in 2008; which highlights that not all hedge fund managers can keep up with the pace. The blatant poor performance along with the high fees was the main reason, it was observed that between 2009-2016, the S&P 500 earned a total return of 14.5% whilst the Dow Jones Credit Suisse Hedge Fund Index recorded only 6.1% (Brown, 2016). After the crisis, investors expected fees to be trimmed, a study showed that 2659 funds kept the same fees, although lock-up periods were reduced (Olympia Capital Management, 2009).

Pension funds

Ayres and Curtis (2015) explored the high fees charged by pension funds, their data included 3500 401-K plans involving above \$120 billion of investor's capital. The findings suggested that losses were mainly attributed to the high fees the funds were charging rather than the lack of investment diversification. These high costs were affiliated with expensive investment options to be included in the portfolio, they found that portfolios often consisted of "dominated funds" which cost 50 basis points more than other funds in the same category. The high fees charged in Mexican pension funds also led to the reduction of capital accumulation by 25% (Aguila et al., 2008).

Whitehouse (2000) focused on the capped charges in pension funds, it has been found that the UK had a fixed ceiling. Skypala (2015) supports the presence of the cap arguing that despite changes from technological innovation and benefits from economies of scale,

there was also a continuous increase of fees over the years. Kurach et al. (2017) introduced the idea of a reverse auction mechanism to facilitate fee competition, they add that it is not easy for regulators to simply cap the fees due to information asymmetry. The researchers' intervention could become risky as a cut too deep could endanger the stability of certain institutions. It has been found that the management fee was settled close to zero for countries (Bolivia, Kosovo, and India) when adopting the competitive bidding process (von Gersdorff, 1999; James, 2005).

The presence of high fees in hedge funds has led several pension funds to pull out their investments, Fitzpatrick (2014) reported that pension funds were incurring a fee of \$15 million a year whilst they produced a return of less than 2%. The second-largest pension fund in Europe also followed the same suit, by withdrawing €4.2 billion in hedge funds due to consistently poor performance over the years along with high fees. Furthermore, Johnson (2015) also added that the continuous public scrutiny for the not-so transparent funds was a concern. In 2019, the largest pension investors in the UK also slashed their investments by nearly £450 million due to exorbitant management fees and a performance fee (Keidan and Cohn, 2020).

Closed-end funds

Malkiel (1977) had previously argued that the link between management fee and discount should be dismissed due to the fees being too low and remaining constant. He reasoned that a fee of 50 basis points could not account for an average discount of 15%. However, Ross (2002) pointed out that the methodology previously utilized to analyze discounts may not have been adequate to explain the effect of fees. Additionally, Kumar and Noronha (1992) argued that although expenses are not the sole factor contributing to discounts they do affect performance. Using a sample of US closed-end funds trading on the NYSE and American Stock Exchange for 10 years, it was established there indeed is

a relationship between these factors; however further investigation is required to help understand the other factors surrounding this puzzle.

Lenkey (2015) argued that when the benefits from the manager's information exceed the management fees, closed-end funds are expected to be issued at a premium. However, after the issuance, the fund starts trading at a discount due to the capitalization of future manager fees which potentially outweighs the benefit from managers. The study also shows that there is an unpredictable relationship between management fees and discount due to the size of the fee which is affected by an incentive for managers to capitalize on the information. Wu et al. (2016) found that the fund managers capitalize on the positive perception that investors have on their performance based on past performance, therefore, it becomes expected that management fees will increase when the fund has been performing well or at a premium.

It is also argued that the absence of redemption in closed-end funds creates less uncertainty for the capital in the funds and therefore can be tied to longer and less liquid assets. Cherkes (2003) found that closed-end funds are favored mostly by smaller investors since the fees (fixed or brokerage) that they incur are larger if they choose to carry out direct trading, however, closed-end funds allow for diversification in illiquid assets with low fees. Furthermore, the authors also found that when fees are not considered, funds trade at a premium but with fees, depending on the fee relative to the liquidity benefit the funds sometimes trade at a discount.

Deli (2002) compared the discipline mechanism in funds and proposes that the fear of sudden or large redemption in open-end funds acts as a natural mechanism for investment managers in these funds. Since no such pressure exists in closed-end, the ties of management fees with performance allow for managers to compensate for controlling their actions. The closed nature of these funds allows for the investment in illiquid assets which requires more research efforts thus greater costs due to less readily available information. Cullian and Zheng (2012) assessed the relation between management fees and liquidity of the funds and detected a positive relationship between fees and the least liquid assets. Focusing on US closed-end funds, Parwada and Siaw (2013) attempted to understand the types of investors in the funds, based on the liquidity theory they found

that institutional investors, similar to small investors invest in closed-end funds for access to illiquid assets. The researchers found a negative relationship between institutional ownership and the fund's expense ratio.

Corporate governance and fees

Bogle (2000) presented a chastised observation regarding fund directors, he mentioned that although the Investment Company Act requires the directors to make the interest of the investors a prime objective, these agents have witnessed the expense ratio increase over the years. Radin and Stevenson (2006) added that it is quite common for the fund's management to fill the board's position with individuals who share an allegiance with them leading to debatable legitimacy of their independence. The Securities and Exchange Commission (2003) states that the majority of the board should be independent, which would benefit investors when they are negotiating important matters including lowering advisory fees. Furthermore, the directors are required to approve the distribution fees under Rule 12b-1 to lower the costs for the shareholders.

Managerial ability

Ramadorai (2012) focuses on theories proposing that fees, illiquidity, and managerial ability possess an impact affecting the premium in hedge funds. Researchers argued that it is more difficult to measure the factors mentioned by Ramadorai's study and therefore the latter focused on closed-hedge funds. The measurement of remuneration is much easier to detect in hedge funds due to the explicit link between performance and pay, furthermore there is a stricter restriction on the withdrawals and inflows of capital as opposed to active mutual funds allowing for better measurement for illiquidity. The

mentioned study's findings also show that high management fees have a negative relationship with premiums.

The willingness of investors to entrust their capital to investment managers is quite intriguing as often investors do so based on the ability of the managers, however, Berk and Stanton (2007) pointed out that there was a lack of evidence to analyze ability for managers especially in actively managed funds. This matter is also quite prevalent for the closed-end fund as these funds trade at either discount/premium. In the authors' study, it is concluded that the tradeoff between management fees and managerial ability helps in the predictability of discount levels. The level of discount was also seen to be affected by the perception and beliefs of investors on the manager's ability and the compensation contract. Bearing perception in mind, fixed compensation allows managers to retain their position for longer periods.

Pattitoni et al. (2012) discovered the existence of a relationship between the fee structure in Italian REITs with key decisions on debt and investments made by managers. The researchers used REITs as they argue that these funds are less prone to agency problems due to limits of free cash flow to managers since the funds are legally obliged to pay out 95% of their net taxable earnings. The mentioned study found that there is full alignment between the investors and the managers when focusing on performance fees only which is based on the market value of the fund rather than management fee which is based on the NAV. In the case of REITs, it has been observed that they mostly trade at discount and sometimes premium, therefore, focusing on the NAV could be inaccurate.

Conflict of interest

"Price is only relevant in the absence of value" – Brown (2011)

It has been observed that over the past 30 years an increased number of investors have allowed for the separation of ownership and control since actively managed funds were the largest form of intermediary vehicles for wealth management. It was found that the design of an optimal incentive to curb the conflict of interest between portfolio managers and investors was complex. Since it was important to consider not only the performance but also information acquisition. Lhabitant (2007) argued that incentive contracts should include the concept of risk-sharing between the investors and the managers, to avoid the taking of inappropriate risks to boost fees. The paper also pointed out that the performance fee in asset management was appropriate as only good performers earn higher compensation.

Ackermann et al. (1999) explored some basic mechanisms to mitigate the principal-agent problem in hedge funds, emphasizing the ownership structure and incentive contracts provided to the investment manager. The researchers found a strong relationship between incentive fees and the Sharpe ratio. It can be argued that for managers to surpass the previous highest achievement, which would mean surpassing the high-water mark, excessive risks are usually taken. However, hedge fund managers usually offer quite a substantial initial investment in the fund which highlights their own tied capital. Agarwal et al. (2009a) also detected superior return, when ownership of managers is high and there is a greater incentive fee.

Edelen et al. (2012) explored the opacity of costs in funds, whereby the fund managers bundle their fees along with the payments to the broker for the execution of trade for the fund. This practice makes room for potential agency costs as investors are conflicted with managers due to the lack of transparency. Carlson et al. (2004) found that investors are not subjected to full disclosure on the fees that they pay for mutual funds, the expense ratio includes distribution fees, which are not explicitly billed to the investors. On the other hand Prat (2005) questions whether transparency is always the ultimate answer, it is observed that pension funds that are more closely monitored by various parties underperform compared to mutual funds.

It can be argued that the overaction of agents on various matters including fees can sometimes lead to worse performance and also create an agency problem. In this study,

the focus is on the board of directors who are also the agents of the fund but in charge of monitoring the investment managers. The board of directors needs to keep a close eye on the latter but an overshadow could potentially prove to be detrimental to performance.

Chen et al. (2007) argued that the investors in insurance mutual funds and argued that insurers frequently direct the attention of less-informed investors on their need for funds ownership rather than performance. This lack of knowledge and reliance on investment advice often leads to no monitoring. Furthermore, typically the insurers of mutual funds are also managed by the same investment managers for the mutual fund, there is a potential conflict of interest since the investment management is serving both the agents and the principal, managers may be tempted to favor the mutual fund out of fee for losing its contract.

Although Del Guercio et al. (2018) argued that investors can potentially reap a benefit through lower fees due to the mutual fund having lower operating costs when investing in funds associated with advisory firms offering multi-products. We argue that the conflict of interest is more important to consider as conflicts arising could hurt the investors and their wealth, along with their trust. Ultimately a loss of trust from investors would hinder the capital acquisition of these funds.

Board of directors

Similar to other types of funds, mutual funds have few or no employees, the board of directors seeks the assistance of varied agents such as the investment advisors or custodians to carry out services for the fund. The compensation of investment advisors is based on the assets of the fund; which can prompt them to increase the size of the fund in an attempt to secure higher fees thus leading to a conflict of interests. However, it is observed that it becomes difficult for advisors to increase assets with the existing shareholders, therefore they would need to offer new shares to expand the funds. Khorana and Serveas (2012) detected a positive relationship between fund flows and fees, showing

that when the fund attracts new investors, which is an advantage open-end funds have; the fees for the advisors also go up.

Usually, in a fund family, several funds are focusing on a variety of investment strategies, it is not uncommon for each fund to have the same board of directors which leads to a unitary board. Adams et al. (2012) argued that the presence of unitary boards has higher susceptibility from being influenced by the fund advisors, and allows for the charging of higher fees. When focusing on open-end funds, Tufano and Sevick (1997) detected that a board with a greater proportion of independent directors on the board also helps in lowering the fees. A similar finding has been detected in closed-end funds, Del Guercio et al. (2003) argued that the board is paid excessively to share the increase in fees.

It is argued by Johnson (2009) that fund advisor initially appoints the board of directors, which can affect their level of independence when arguing over the setting and negotiation of fees. The progress can become less vigorous due to the potential close relationship of board members with fund advisors. Furthermore, Birdthistle (2006) found that the executives of the fund's advisers are often more aware of the fund's operation or regulation than the board of directors, who have far fewer meetings. When the board detects any misconduct, they do not have the authority to bring it to the advisers themselves and have to go through legal counsel. The lack of wielding authority to discipline the advisers and to fire them in case of conflict behavior which can affect the shareholders implies that the advisers have controlling powers and are also able to extract rent.

Mutual funds have a board of directors present to monitor the actions of the investment managers, English et al. (2011) proposed that the board does not simply get rid of managers based on poor performance, but they do so if the fees that they charged is not justified by the returns provided. The specified study above focused on the link between fees and failure of the funds, it was found that funds charging higher 12b-1 are liquidated more slowly and are also merged into funds within the same family instead of liquidation, which makes the conflict between the fund and investors worse.

Tan and Cam (2015) explored the influence of corporate governance mechanisms such as the board and independent directors in superannuation funds (Pension funds). Similar to

investment trusts, these funds have multi-layer of agency problems as they have trustees who manage the pooled capital of investors, and these trustees track talented investment managers. Their findings show that there is a positive relationship between both board size and independent trustees and management fees. Their results show that the presence of well-governed funds, with the presence of independent members and a board size for monitoring does not necessarily translate into lower costs for the investors. An earlier study by Coleman (2006) argued that the higher expenses in Australian funds were linked with higher agency costs.

Ownership

It has often been argued that managerial ownership in an organization can curtail the level of conflicts between the principal and agent. Khorana et al. (2007) linked poor performance in mutual funds with the lack of bond that managers had with the fund. The authors found that almost half of the managers in the sample had ownership stakes in the fund they were overseeing, which led to a positive relationship between risk-adjusted performance and ownership. These results become persistent when controlling the various measures of board effectiveness. It was further detected that ownership of managers is higher in the presence of lower front-end loads, showcasing that fees affect ownership.

Agarwal et al. (2009a) noticed a superior performance in hedge funds in the presence of higher managerial ownership, along with a higher degree of discretion and greater managerial incentives. Their results showed that an increase of one standard deviation in ownership leads to an increase of 150 basis points in forecasted annual returns. Ma and Tang (2018) and Lee et al. (2018) also found that managerial ownership is associated with less agency-induced risk-taking, which can affect the fees of the fund. However, Robinson and Sensoy (2013) found that neither higher fees nor low managerial ownership are associated with lower performance after fees. They detected that 23 funds whose ownerships were less than 1% outperformed other funds.

The total expense ratio charged by investment trusts includes the audit fees, Tee et al. (2017) tackle institutional ownership in Malaysian firms and find that there is a positive relationship with audit fees; it has been argued that the higher level of institutional owners is beneficial as they press for a higher quality of audit which leads to the enhancement of investor's protection. However, an investigation on the influence of foreign institutional investors by Kim et al. (2018) showed that although there is a demand for higher audit quality, they possessed a limited ability to influence the auditors.

5.2.3 Corporate governance theories

According to Damodaran (2010), the strategic decisions of a business are followed by financial consequences that can potentially affect the shareholder's wealth, hence the decisions made by the principal in the firms cannot be isolated from corporate governance. It has been observed that different aspects of corporate governance are tackled through various theories, which include agency theory, stewardship theory, stakeholder theory, and resource dependence theory. It is also important to note that corporate governance mechanisms do not function similarly in different countries, Mallin et al. (2015) find that firms in the UK are typically characterized by a principal-agent problem. We examined each of the aforementioned theories in the previous chapters (Chapters 3 and 4) and concluded that the agency theory was the most appropriate. Below we present more facts to justify the application of this theory in the study.

Theory of choice

The Association of Investment Companies (AIC) is an organization that represents the interest of closed-ended funds including investment trusts in the UK. The organization published a guide on Corporate Governance for investment companies that has been endorsed by the FRC. It can be observed that the corporate governance characteristics

such as the board of directors and remuneration, set in the AIC Corporate governance are linked with investor protection which is highlighted in the agency theory. It can also be argued that the report does not mention any stakeholders apart from the principal and agents because there are no such parties within an investment trust which would make the stakeholder theory unsuited.

Mallin et al. (2010) found that firms in the UK are typically characterized by a principal-agent problem. Furthermore, the Code of Corporate Governance also focuses on solving the agency problem as it includes principles regarding the accountability of the board towards the shareholders and the auditors. Section E.1 in the code adds that there should be a dialogue with the shareholders to understand their views. The report on corporate governance by the AIC also supports that the board should regularly canvass the views of the shareholders. These reports highlight the various aspects of corporate governance, and these key reports focus on solving the agency problem, since we are focusing on UK investment trusts it seems appropriate that the agency theory should be utilized.

It can be argued that the investment decisions made by the investment managers will have a repercussion on the financial performance of investment trusts therefore it is important to assure that decisions made are efficient and not influenced by self-interest. Clarke (2007) found that investors are willing to pay a high premium for shares of firms perceived to have a good corporate governance structure as this would indicate the agents in the firms have their interests aligned with the principal. Mallin (2016) pointed out that investors often consider factors such as insider shareholders, audit committees, board independence, the board size, CEO duality; prior to committing their funds to a firm.

5.2.4 Corporate governance characteristics

It has been observed that the duties regarding loyalty and care towards investors have not been upheld in various institutions whether it is firms or funds. The capital providers are

often faced with agents and apparent monitors who possess conflicted ideas; thus, fueling the agency problems. The matter of fees is an important aspect to consider when investing due to its ability to reduce return, which leads to the investors entrusting the oversight responsibility to the board of directors. However, it is often found that entrenchment manifests when the board develops a close relationship with management. Furthermore, there poses another problem in the governance of funds as the board is often ill-equipped to carry out their duties as in the case of Navellier Management company (Wyatt, 1998).

In this section, we have focused on several corporate governance characteristics which have been selected from various studies due to their suitability for investment trusts. The main dependent variable in this chapter is total expense ratio (TER), however, it has been observed that there is a lack of literature that focuses on the effect of corporate governance on TER. Thus, this section focused on literature that is centered on various fees such as audit fees which make up the TER. From the current literature, hypotheses have been derived for the relationship between corporate governance and fees, and these are explored in the sections below.

Board size

Yermack (1996) argued that the board of directors act as a critical internal mechanism in a firm since they make important decisions such as strategic goals and recruitment of managers; Lefort and Urzua (2008) also supported this claim and found that a board provides a key monitoring function in tackling agency problems. Thus, the presence of an efficient board structure will allow the company to have long-term success, where there is a balance of the right knowledge, expertise, and experience from the members. Raheja (2005) and Adams et al. (2010) found that each firm has an optimal size for its board depending on its complexity and characteristics. Adams and Mehran (2003) and Lehn et al. (2009) found the structure of the organization influences the size of the board for

instance when there is an acquisition/merger the board size increases since the directors of the acquired firm will be added to the firm.

Jensen (1993) argued that when boards are large it hinders effective communication of the members thus allowing the CEO to free ride, so smaller boards are effective in monitoring the actions of the CEO. Lipton and Lorch (1992) expressed that large boards have less meaningful discussions and there is often a lack of cohesiveness, which leads to the development of conflicts. This argument points out that large boards are better for firms, as the complexity of the business increases there is a need for greater diversity in skills and experience from the directors; whilst small boards lack the advantage of having a range of expert advice from the directors (Dalton and Dalton, 2005); with a large board comes a wider variety of perspectives (Zahra and Pearce, 1992; Dalton et al., 1998).

Bozec and Dia (2017) argued that the board of directors that is composed of more independent directors will demand better audit quality thus there should be a positive relationship between the independence of the board and audit fees. Jiraporn et al. (2018) proposed that a strong board with greater independence does not require as much external audit quality as opposed to firms with less effective corporate governance; thus, they will incur fewer audit fees. In this study, most of the board is comprised of NEDs; consequently, it can be deduced that a larger board size will include more NEDs. It can therefore be argued that larger boards will have more NEDs who will provide better corporate governance in the funds and thus there will be a lesser need for more external auditors.

Guping et al. (2020) focused on the effects of non-executive directors on CSR reporting, they found that within the framework of agency theory the agents tend to disclose information about CSR activities due to the incentive they can derive from these activities. Sial and Chunmei (2019) argued that the main duty of the board of directors is to ensure that the personal interest of the managers does not overshadow those of the shareholders. According to the agency theory, firms will have better performance when the board is larger since there will be a larger pool of expertise (Basset and Koh, 2007). The current research of the thesis also focuses on the agency theory and proposes that the presence of a larger board will be beneficial for the investors as the fees can be reduced.

Provision 24 under the UK Code of Corporate Governance (2018) states that there should be a minimum of two or three non-executive directors on the audit remuneration committee, though there is no precision on the board size. However, an earlier version of the code (2016) mentioned that the board should be sufficiently sized and include the appropriate combination of directors to ensure that the decisions made by the board are not swayed by any individual or group.

Hypothesis 1: The presence of a larger board of directors will negatively impact fees

Female directors

Nehme and Jizi (2018) found that the increase of female directors on the board led to a reduction in the likelihood of financial statements being manipulated. The researchers hypothesized that the presence of women on audit committees encouraged better audit quality which translates into higher audit fees, however, their results showed a negative relationship. Mallin and Michelon (2011) also found a negative relationship and argued that when female directors improve their vigilance, they rely less on external auditors. On the other hand, Sellami and Cherif (2020) found a positive relationship between audit fees and the representation of female directors on the audit committee, as the latter demand higher quality audits. Lai et al. (2017) argued that female directors have higher ethical standards and showcase higher levels of monitoring, thus they would be inclined to seek better audit efforts. The researchers also found that the audit fees were higher by 6% when the board was gender diverse as opposed to an all-male board.

Mallin and Michelon (2011) and Terjesen et al. (2016) argued that female directors are more active on corporate boards which leads to better vigilance and increased efficiency, thus there is less reliance on external auditors for monitoring. It is argued that there is a negative relationship between female directors and fees in the firm. An earlier study by Ittonen et al. (2010) also found the presence of female directors helps decrease audit fees

as their presence helps improve the internal control of the firm especially when they are present on the audit committee. Bhuiyan et al. (2020) found higher audit fees in the presence of female tainted directors. They argue that female directors do demand better auditing however this is negated if these directors have tarnished reputations.

Although the UK Corporate Governance Code does not discuss gender balance on the board of directors, the UK government supported the Hampton-Alexander Review, which is a business-led initiative to increase the representation of female directors on the boards of large companies in the UK. This report highlighted that there is an increasing effort to include women in leadership positions as they add value to the board. The studies discussed above propose that female director will seek better audit quality thus the fees will be increased, it is also suggested that the TER which is inclusive of the management fee (63.8%) will also increase.

Hypothesis 2: The presence of a greater number of female directors on the board will increase the fees

Age of directors

Doucouliafos et al. (2007) found that the director's age and the director's ownership were key determinants of the director's pay. The researchers utilized age as a proxy for experience when age has increased the monitoring will become more effective and thus the remuneration of the directors would increase. Their findings indicate a negative relationship between directors' age and remuneration, this indicates younger directors are paid more than the older directors despite the accumulated experience of the latter. In this sample, remuneration makes up 5.1% of the total fees, which effectively indicates that age increases parallel to remuneration increment, as it directly increases the TER. According to Lai et al. (2017), board diversity in terms of age, gender, ethnicity, and

experience diminishes groupthink. The authors further added that younger directors are more likely to seek more information and so require a greater audit effort.

According to Ng and Feldman (2008) age diversity on the board is crucial since younger directors are more enthusiastic and get along with others whilst older directors may prefer to utilize their time for their families rather than spending more time at work. Ali et al. (2014) took a different approach to diversity, noting that younger directors demonstrate a superior understanding of new technology, older directors contribute wisdom and stability to the board. According to the agency theory, Munari et al. (2010) find that managers typically pursue short-term gains which can affect long-term investors. The researchers also added that the board of directors acts as the core corporate governance mechanism in the firm thus characteristics such as age and education background are key factors that affect decision making. This study also applies the agency theory and focuses on the impact of age on the fees.

The report of board effectiveness published by the FRC highlights the importance of a diverse board, utilizing the age of the directors as a component that contributes to diversity. The report mentions that a more diverse board has the potential to increase or decrease performance since board dynamics can change over time. Thus, it is proposed that if the board is concentrated with older directors, fees would increase due to the lack of perspectives.

Hypothesis 3: There will be a positive relationship between the presence of older directors and fees

Tenure of directors

Mira et al. (2020) discovered that audit fees for CEOs were greatest during the first three years of their employment, as well as the last year of their term. It is believed that at the

beginning of their tenure, CEOs would work more to prove their abilities to the market; they would be strongly motivated to misrepresent their earnings to demonstrate higher performance. Therefore, it would be crucial to have high-quality audits which would increase the audit fees. Ali and Zhang (2015) also noted that misstatements of earnings occur during the early years of the CEOs' position. Chan et al. (2013) found a negative relationship between audit fees and the tenure of the board of directors on the audit committee. The researchers argued that when tenure increases for the directors on the committee, the latter becomes more efficient in monitoring the reporting process thus there is less need to increase audit effort; this impacts the audit fees negatively.

Shen (2003) utilized the agency theory when focusing on the tenure of CEO which is used as a proxy for managerial entrenchment, he argued that CEOs work on their leadership skills at the start of their tenure, however, after a few years when they start to gain power there is a greater likelihood to become entrenched. Pan et al. (2013) found that as tenure increases the CEOs are faced with greater amounts of capital to manage and could also have gathered a greater power base; this combination could lead to entrenchment. Saleh et al. (2020) explored the tenure of CEOs in Palestinian firms since many CEOs have been in the same job for up to 23 years, they posit that the lengthy tenure is associated with the lack of restrictions imposed on tenure. They argued that directors who hold multiple directorships might not have enough time to carry out their duties which would then increase the agency costs.

The UK Code of Corporate Governance (2018) provides some guidelines with regards to the tenure of the directors with a maximum of 9 years in their position. If a firm decides to lengthen the tenure of a director beyond the recommended period, it needs to provide some explanation on the independence of the director. It can be debated that a director with a long tenure would develop a close relationship with management which can impede on judgment and thus would not result in proper evaluation of management action, in turn affecting performance.

Hypothesis 4: The tenure of directors is positively related to the fees of investment trust

Director's ownership

Jensen and Meckling (1976) highlighted that managerial ownership can be utilized as an alignment mechanism to align the interest of the agents, however, Kim and Lu (2011) argued that when managerial ownership is too large it can lead to entrenchment. Shan et al. (2019) investigated the link between managerial ownership and auditor selection and observed a negative relationship between ownership and audit fees. The researchers used piecewise regression to determine that managerial ownership at around 20-50%, showcased potential entrenchment, they propose that management ownership influences the selection of auditors. Gotti et al. (2012) also detected a negative relationship between managerial ownership and audit fees when studying US-listed firms, they found a decrease of 0.2% in audit fees when ownership increased.

Yuan et al. (2021) investigated the impact of managerial ownership on carbon transparency by drawing onto the agency theory. When managers have a considerable stake in the firm, they are more inclined to apply a proactive strategy and they are more likely to engage in carbon reduction. Arora and Dharwadkar (2011) found that managerial ownership is highly discussed within corporate governance as it is deemed to be a mechanism to reduce the conflict between agents and principals, which would reduce agency costs. Chen et al. (2020) focused on the effect of ownership of non-executive directors on the costs of debt by focusing on agency theory. Their findings show a decrease of 1.67% in loan spread when there is an increase in managerial ownership by one standard deviation, which helps the firm reduce its financing cost and enhance the value of the firm.

The UK Code of Corporate Governance (2020) states that NEDs have the responsibility to challenge the decisions of the board of directors and to determine the nature of significant risks that can affect the company. It can be argued that the NEDs would be more prone to act their part when part owners of the investment trusts are, thus director

ownership can be seen as an important mechanism to improve the governance in the funds. The Corporate Governance report issued by the London Stock Exchange⁴² state there would be good governance when the inside management act in the interest of the owners, therefore it can be assumed that insiders with ownership in the investment trusts could be beneficial for the shareholders.

Hypothesis 5: The director's ownership is negatively related to the fees of investment trust

Substantial ownership

Barroso et al. (2018) focused on the effects of controlling shareholders on the fees charged to auditors. The researchers determined that the relationship between fees and corporate governance is of a U-shape through the shareholder theory, however, there is an inverted U-shape under the stakeholder theory. The stated research's findings indicate that as block holding ownership increases, it leads to a decrease in audit fees, however, an excessive ownership can lead to higher fees. Francis and Wang (2008) found that when there are higher agency conflicts, the role of the auditor becomes more essential as the credibility of the financial statements relies on them. Therefore, there is a greater need for the auditor's service which can translate into higher fees.

Edmans (2014) found that large investors possess a greater stake in a company compared to the managers; the lack of ownership for the agents leads to agency problems thus the blockholders have the incentive to play an active role in monitoring the activities of the agents. In this paper, the focus is on various blockholders theories, and through the intervention theory, the author finds that large investors can improve the value of the firm by aiding with advice or preventing managers from embarking on value-destroying

⁴² https://www.lseg.com/sites/default/files/content/documents/Corporate_Governance.pdf

investments. Stepanov and Suvorov (2017) support the notion that these investors are active in restricting managers from extracting benefits from the firm under the traditional agency theory.

According to the UK Stewardship Code (2020), institutional investors can carry out their research process to identify whether the investment managers are making investments that can enhance or destroy the value of the shareholders. These investors would typically gather information regularly to allow them to increase their knowledge and have a better understanding of the actions of the managers. Provision 3 proposes that each institutional investor should have disclosed their conflict policy to address potential issues when they arise in the future. The institutional investors and managers may have conflicted views on matters such as the protection of shareholder rights and remuneration.

Hypothesis 6: The substantial ownership is negatively related to the fees of investment trust

5.2.5 Fees

Investment funds

According to Malkiel (1999), the rise of day traders and their lack of belief in the fundamentals could have led to the technology bubble, due to systematic mispricing of assets in the market and irrational investors. Brown and Cliff (2005) explored the sentiment of investors and observed that during periods of excessive optimism in the market where sentiment is high, it leads to the market being overvalued which is then followed by a return. Hu et al. (2016) detected a negative relationship between fees and performance in equity mutual funds, it can be argued that when the sentiment of investors

increases, they select managers with better skills thus they are willing to incur higher fees, however, the performance turns out to be low since there was an overvaluation in their analysis of the prices.

Gil-Bazo and Ruiz-Verdu (2008) found that funds with better quality should not be expected to charge higher fees, they also detected that some investors do not have enough ability to evaluate funds quality which can lead to some poorly performing funds charging higher fees. On the other hand, Casavecchia and Hulley (2018) recently found investors do have the ability to analyze funds however the idiosyncratic volatility renders the estimation of performance difficult. They remarked that the noise in the market led to greater dispersion amongst the pessimist and optimist investors. The latter have high expectations about the performance of the mutual funds and thus accept a higher fee.

Mansor et al. (2015) compared the impact of fees on the performance of two classes of mutual funds, the common funds, and Islamic funds. They reported that over 20 years the fees charged by the funds have significantly declined the returns, especially for smaller investors. Their results showed that alpha was reduced to 3.66% after fees were deducted, this return would be deemed unsatisfactory by investors since the risk-free rate during the same period was 4.2%. An earlier study by Sharpe (1966) also confirmed that fees charged in mutual funds had some impact on the return where they observed funds had higher ratios when expenses were low.

5.3 Research gaps and contribution

Both open-end funds and closed-end funds provide investors exposure to investments across varied asset classes, sectors, or geography; and the risk tolerance that governs those choices. Yet the risk appetite on its own is not sufficient since these different choices have various fees assigned to them. Investors must evaluate whether the fees that they incur are

justified by the returns that they earn. It can be argued that a fund charging lower fees does not necessarily guarantee an overall better return for the investor as it may be a demotivating condition for the manager who may not be encouraged to enhance performance.

The motivation for this chapter stems from the interest that investors showcase for investment trusts as a medium for investments. Although these funds trade away from their NAV, the longevity of these investment vehicles remains intriguing. Closed-end structures ensure the holdings of illiquid assets which can help boost performance, it also means that withdrawal of capital from these funds takes longer. Consequently, this chapter is dedicated to the focus of the effect of corporate governance on the fees charged by investment trusts. This is befitting in this study due to the nature of the role of the board of directors in setting the fees whilst monitoring other aspects of fee decisions that investment managers make. The research question can be formulated as follows:

Do corporate governance characteristics affect the fees charged in investment trusts?

5.4 Data and methodology

5.4.1 Sample

Similar to Cullian and Zheng (2012), the current study identifies the population of closed-end funds using the Morningstar database, contrary to their selection of all the funds we only select investment trusts from the CEFs. The identified funds were cross-checked on the London Stock Exchange website, where some information such as the inception date and legal name for the funds were acquired. The data concerning the fees as well as corporate governance were hand collected from the fund's annual reports which were

obtained from the fund's website. Tan and Cam (2015) found that the lack of public disclosures for annual reports and other documents for pension funds obstruct data collection; however, in this study, the funds are publicly listed and are therefore required to make these documents available which facilitated our task. The final sample comprised of 123 equity-focused investment trusts incorporated before 2000 (same sample as Chapter 3).

5.4.2 Independent variables

In this chapter, the focus is laid on the same corporate governance variables that have been used in the previous chapters (Chapter 3 and 4). The variables include non-executive directors, female directors, age of directors, tenure of directors, substantial ownership, and director ownership. The literature of these corporate governance characteristics is discussed in Section 5.2.2 and the unique data set 123 of equity-focused investment trusts from 2000 to 2017, was hand-collected.

5.4.3 Dependent variables

Total expense ratio (TER)

The main data in this chapter are the fees of the funds, similar to Khorana and Serveas (2012) and Adams et al. (2012) we utilize the total expense ratio (TER) of the investment trusts. Since the TER was not available for all the observations, especially before 2003; it had to be calculated to acquire uniformity. The calculations followed the guidelines from the AIC, which is the trade association for closed-end funds in the UK. The AIC (2018b) reported that more than 50 funds had abolished the performance fee in the year, and previously other funds had also stopped charging that fee.

The costs in investment trusts are divided into fees and charges; the fees comprise the management fee and performance fee. The performance fees are agreed beforehand and based on the returns that the fund manager generates for the investors (CFA, 2013). Pettit (2020) argued that there is a lack of precise regulation in relation to these fees and their inconsistent use can affect the investors. Although these fees can be seen as an extra incentive for the fund managers to deliver good performance, it was observed from Chapter 5 that the average discount in the investment trusts was 10%, which indicates that in most cases the performance fee would not be payable to the managers. Therefore, the consideration of the fee in this study was excluded; also, since its construction is based on the market value as opposed to the NAV, the efficiency lessens and becomes inadequate for use.

Formula 2

$$TER = \frac{\textit{Total expenses}}{\textit{Net asset}} * 100$$

Note: As per the calculation by the Association of Investment Companies, the total expenses include a management fee, director's remuneration, auditor's fee, and other administrative expenses.

In this chapter, only equity-focused funds are used since investment trusts focusing on other asset types such as properties have various other expenses. For instance, REITs have expenses in the form of legal fees, depository fees, and publications fees which are not applicable to investment trusts focusing on other asset classes. Furthermore, Deli (2002) found that funds focusing on equity only, have a higher management fee than fixed income-focused funds, the higher fees are associated with the acquisition of information, which can have an impact on the portfolio of funds. Moreover, there is more active trading in equity funds which requires more research. Therefore, to allow for more uniformity, we focus on equity-focused investment trust.

Figure 16 shows the breakdown of the TER, which consists of the management fee, administrative fee, directors fee, and audit fee. The contribution for the fees concerning the audit and director remuneration is 1.3% and 5.1% respectively, which can be seen as negligible compared to the other fees. Therefore, the focus is mainly on the management fee and administrative fees together with the TER, when we carry out the regressions.

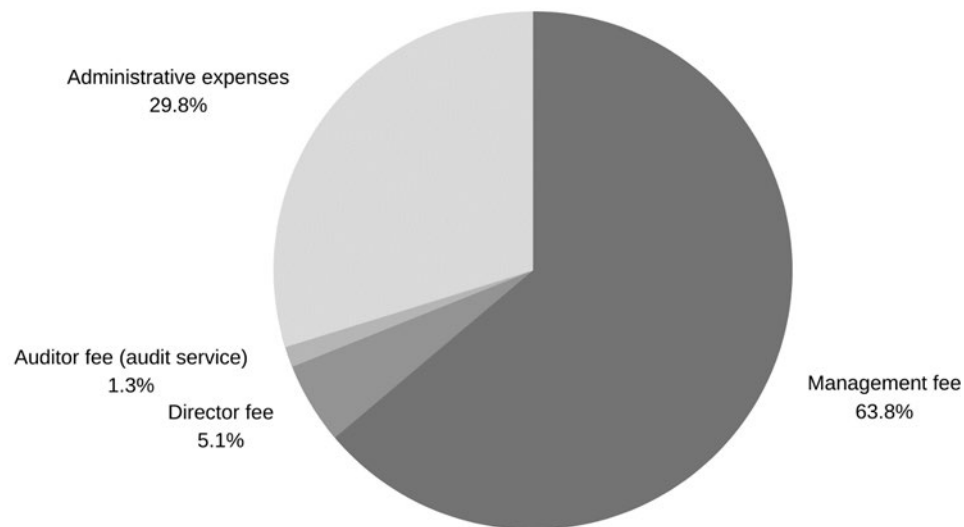


Figure 14 The average fees of investment trusts (2000-2017)

5.4.4 Research methods

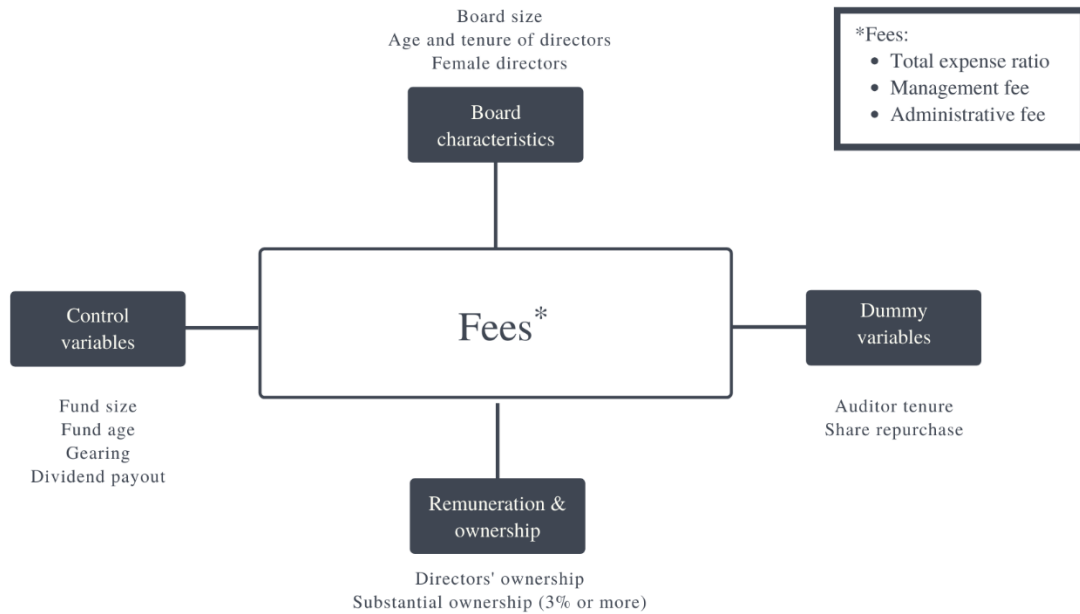


Figure 15 Overview of variables

Table 36 Summary of the proposed hypothesis, descriptions & expectations

	Hypothesis	Definition	Symbol	Expectation
<i>Dependent variables</i>				
Total expense ratio		(Total expenses/net asset) * 100	TER	
Management fee		(Management fee/net asset) *100	MANFEE	
Administrative fee		(Administrative expenses/net asset) *100	ADMINFEE	
<i>Independent variables</i>				
Board size	H1	Number of directors on the board	BSIZE	-

	Hypothesis	Definition	Symbol	Expectation
Female directors	H2	The proportion of female directors on the board lagged by 2 years	FEM_2	+
Age of directors	H3	The average age of the directors (ln)	LNAGE	+
Tenure of directors	H4	The average tenure of directors (ln)	LNTEN	+
Directors' ownership	H5	Total ownership of the directors as a percentage of total shares outstanding	DOWN	-
Substantial ownership	H6	Total of ownership of shareholders owning 3% or more as a percentage of total shares outstanding	SOWN	-
<i>Dummy variables</i>				
Audit tenure		The average tenure of the auditor – tenure longer than 20 years assigned 1 otherwise 0	AUD	-
Shares repurchase		Number of shares repurchased – when shares are repurchased it is assigned 1 otherwise 0	SHARE	+
<i>Control variables</i>				
Fund size		$Size_t = \ln(\text{Market capitalization})$	LNMCAP	-
Fund age		$Age_t = \text{age at the time, } t$	FUGE	-
Gearing		$Gearing_t = \text{Debt}_t / \text{equity}_t$	GEAR	+
Dividend payout ratio		$\text{Dividend payout ratio}_t = \text{Total dividend}_t / \text{net income}_t$	DIV	+

Data source: TER, MANFEE, and ADMINFEE were manually computed using total expenses, management fees, administrative fees, and net assets from the annual reports for each investment trust throughout 2000-2017. The data for board size, female directors, substantial ownership, and director's ownership was collected from the annual reports. On the other hand, the age and tenure of directors were computed using information from the website, Company Check. Fund age was acquired from the London Stock Exchange website. Other data such as shares outstanding, market price, liabilities, and dividends were acquired from the annual report and used in the computation of the control variables. The dummy variables include audit tenure where the auditor's tenure is longer than 20 years will be assigned with 1, otherwise 0. If the investment trusts carry out shares buy back from the market, it is assigned 1; otherwise, 0.

Research model

Equation 4 Research model for fee measure (TER)

$$\begin{aligned} TER = & \beta_0 + \beta_1 BSIZE + \beta_2 FEM_2 + \beta_3 LNAGE + \beta_4 LNTEN + \beta_5 DOWN + \beta_6 SOWN \\ & + \beta_7 AUD + \beta_8 SHARE + \beta_9 LNMCAP + \beta_{10} FUGE + \beta_{11} GEAR \\ & + \beta_{12} DIV + FUNDDUMMY + YEARDUMMY + \varepsilon \end{aligned}$$

The variables used in the equation are as follows: TER= Total expense ratio, BSIZE= board size, FEM_2= Female directors lagged by 2 years, LNAGE= Age (ln), LNTEN= Tenure (ln), DOWN= Director's ownership, SOWN= Substantial ownership, LNREM= Remuneration (ln), AUD= audit tenure, SHARES= share repurchase, LNMCAP= Market capitalization (ln), FUGE= Fund age, GEAR= Gearing, DIV= Dividend payout

Equation 5 Research model for fee measure (MANFEE)

$$\begin{aligned} MANFEE = & \beta_0 + \beta_1 BSIZE + \beta_2 FEM_2 + \beta_3 LNAGE + \beta_4 LNTEN + \beta_5 DOWN \\ & + \beta_6 SOWN + \beta_7 AUD + \beta_8 SHARE + \beta_9 LNMCAP + \beta_{10} FUGE \\ & + \beta_{11} GEAR + \beta_{12} DIV + FUNDDUMMY + YEARDUMMY + \varepsilon \end{aligned}$$

The variables used in the equation are as follows: MANFEE= management fee/net asset, BSIZE= board size, FEM_2= Female directors lagged by 2 years, LNAGE= Age (ln), LNTEN= Tenure (ln), DOWN= Director's ownership, SOWN= Substantial ownership, LNREM= Remuneration (ln), AUD= audit tenure, SHARES= share repurchase, LNMCAP= Market capitalization (ln), FUGE= Fund age, GEAR= Gearing, DIV= Dividend payout

Equation 6 Research model for fee measure (ADMINFEE)

$$\begin{aligned} \text{ADMINFEE} = & \beta_0 + \beta_1 \text{BSIZE} + \beta_2 \text{FEM_2} + \beta_3 \text{LNAGE} + \beta_4 \text{LNTEN} + \beta_5 \text{DOWN} \\ & + \beta_6 \text{SOWN} + \beta_7 \text{AUD} + \beta_8 \text{SHARE} + \beta_9 \text{LNMCP} + \beta_{10} \text{FUGE} \\ & + \beta_{11} \text{GEAR} + \beta_{12} \text{DIV} + \text{FUNDDUMMY} + \text{YEARDUMMY} + \varepsilon \end{aligned}$$

The variables used in the equation are as follows: ADMINFEE= administrative fee/net asset, BSIZE= board size, FEM_2= Female directors lagged by 2 years, LNAGE= Age (ln), LNTEN= Tenure (ln), DOWN= Director's ownership, SOWN= Substantial ownership, LNREM= Remuneration (ln), AUD= audit tenure, SHARES= share repurchase, LNMCP= Market capitalization (ln), FUGE= Fund age, GEAR= Gearing, DIV= Dividend payout

Pooled Ordinary least Squares (OLS)

Adam et al. (2010) focused on US index funds and argue that the fees in these funds remain quite unchanged throughout the years and argue that there is a potential for correlation across the funds and time of their sample, therefore similar to Thomson (2006) and Petersen (2009), they use robust standard errors and estimate their models using the year fixed effect. Although investment trusts face changes in their fees more frequently than index funds, the change is not seen to be drastic over the years with the exception of the periods during the financial crisis in 2008. In general, a downward trend was noted in fund fees, however, in the year 2008, some funds increased their expense ratio. Therefore, in this section, both funds fixed effect and year fixed effect are noted when considering

the time period being covered. Lastly, the studies of Thomson (2006) and Petersen (2009) focus on several corporate governance mechanisms such as tenure, remuneration, ownership, and board size; which is also used in the current study but the highlight is placed within a different framework that focuses on the agency theory.

Prior research by Gemmill and Thomas (2005) also focused on closed-end funds, they research the impact of corporate governance on the discount level and the management fee. Although the present thesis follows the same path, the focus is centered on the expense ratio as well as the management fee and administrative fee that the fund incurs. These three fees are considered due to their importance; management fees and administrative fees are large expenses whilst TER considers all the fees incurred by the funds. Furthermore, our model is inclusive of corporate governance characteristics such as female directors, age, and tenure, which to our knowledge have not been explored in studies focusing on UK closed-end funds. Therefore, we aim to make some contribution to the literature for UK funds.

Since the current research is dealing with panel data, it is crucial to determine whether the fixed effect or random effect model will be suitable; to help with this selection, the Hausman test is performed. Table 37 displays the results from the Hausman test and shows that the null hypothesis is rejected when the P-value is less than 5%, therefore a fixed effect model is appropriate to use. In alignment with this finding, both year and fund fixed effects are included in the regression.

Table 37 shows the results from the Hausman test

Dependent variables			Decision
TER	Prob>chi2 =	0.0000	Fixed effect
MANFEE	Prob>chi2 =	0.0000	Fixed effect
ADMINFEE	Prob>chi2 =	0.0000	Fixed effect

In chapter 3, it was explained that for the OLS model to provide accurate results, some assumptions such as homoscedasticity and linearity must hold. Therefore, in this chapter, tests are conducted to detect whether the assumptions proposed are met; if there are any violations of these assumptions then there would be a need to deal with them appropriately to avoid biased results. Table 38 shows the assumptions along with the relevant tests that have been utilized for the detection.

Table 38 shows the assumptions for the OLS regression

Assumption	Detection/test	Is there a violation?	Solution
Normality	Shapiro-Wilk test Histogram	Yes	Logarithmic transformation
Homoscedasticity	Residual v/s fitted plot Breusch-Pagan test	Yes	Logarithmic transformation Robust standard errors Fund and year fixed effect dummy variables
Autocorrelation	Durbin-Watson test	No, the test does not detect first-order autocorrelation	
Multicollinearity	Correlation matrix Variance inflation factor (VIF)	No, since the correlation matrix did not provide any high correlation between the variables, and there was a low VIF	
Endogeneity	Wu-Hausman test	No, the Wu Hausman test does not indicate the presence of endogeneity	

Source: Chumney and Simpson (2006, pg. 101-103), Brooks (2008, pg. 129-174)

Chapter 3 discussed assumptions in more detail, however, in this chapter only the main findings are reported. Based on the findings shown from Table 38 it is deduced that the OLS model is appropriate to be used in this chapter; thus, this model is applied to fixed effect.

Assumption 1: Normality

Detection/test

Both the Shapiro-Wilk test (Table 39) and histograms (Figure 16) reveal that the variables are not normally distributed, since the P-value is less than 5% significance level

Table 39 Shapiro-Wilk test

Variable	Observations	W	V	z	Prob>z
TER	2,214	0.66	440.26	15.54	0.00
ADMINFEE	2,214	0.57	560.74	16.16	0.00
MANFEE	2,214	0.70	393.85	15.26	0.00
BSIZE	2,214	0.93	95.14	11.63	0.00
FEM_2	1,968	0.98	28.25	8.49	0.00
LNAGE	2,214	1.00	5.25	4.24	0.00
LNTEN	2,214	0.98	28.41	8.55	0.00
LNREM	2,214	0.96	58.35	10.38	0.00
SOWN	2,214	0.98	23.48	8.06	0.00
DOWN	2,214	0.32	889.64	17.34	0.00
AUD	2,214	1.00	4.02	3.55	0.00

SHARE	2,160	1.00	0.77	-0.66	0.75
LNMCAP	2,214	0.97	37.14	9.23	0.00
FUGE	2,214	0.84	211.69	13.67	0.00
GEAR	2,214	0.71	377.33	15.15	0.00
DIV	2,214	0.03	1257.76	18.22	0.00

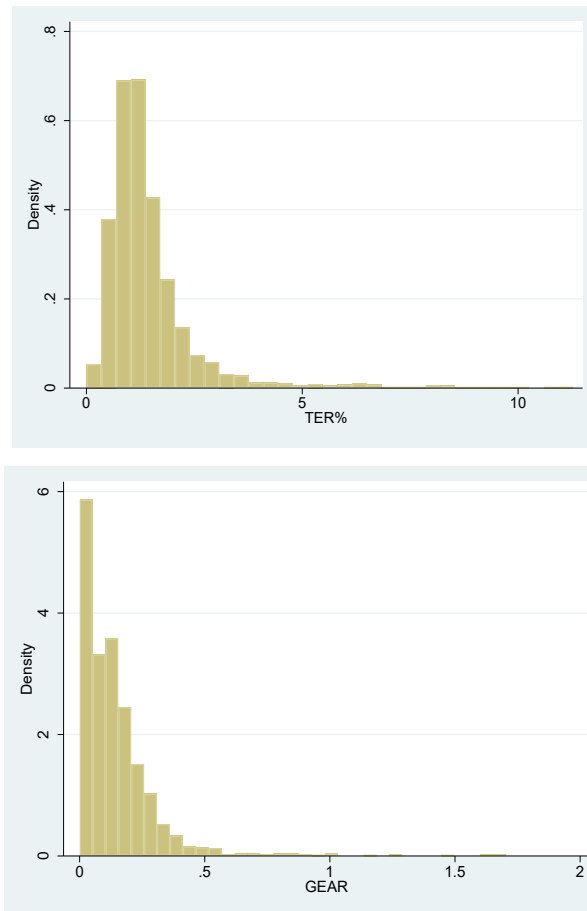


Figure 16 Histograms of TER and gearing

Solution

Logarithmic transformation was carried out on some independent variables.

Assumption 2: Homoscedasticity

The error terms are assumed to have equal variance, however, when the variance is not constant it gives rise to the condition of heteroscedasticity (Kennedy, 2006).

Detection/test

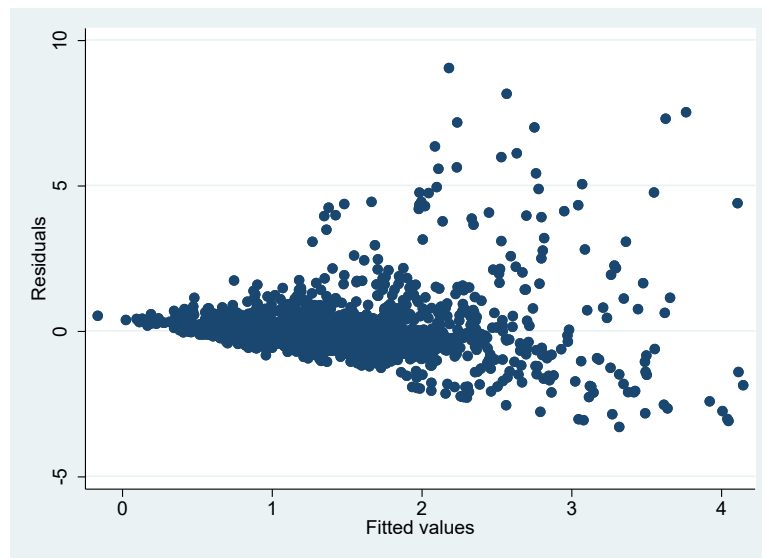


Figure 17 Residual v/s fitted plot for TER

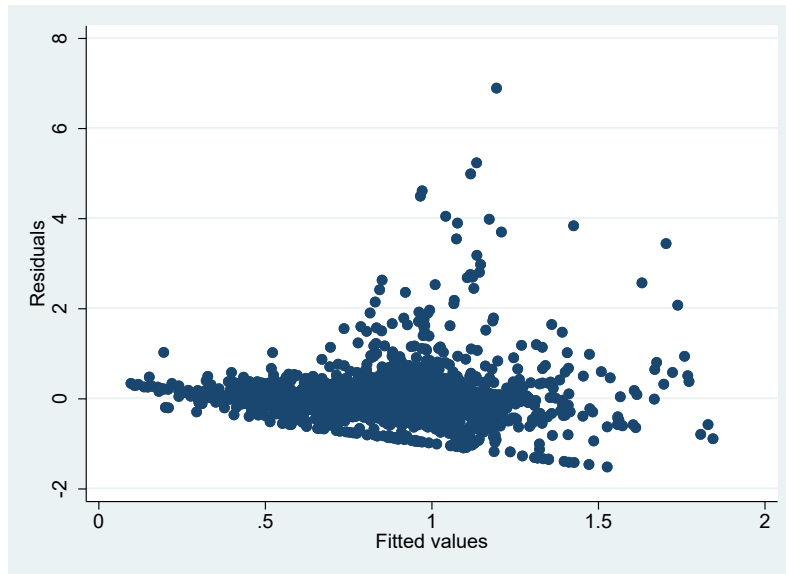


Figure 18 Residual v/s fitted plot for the management fee

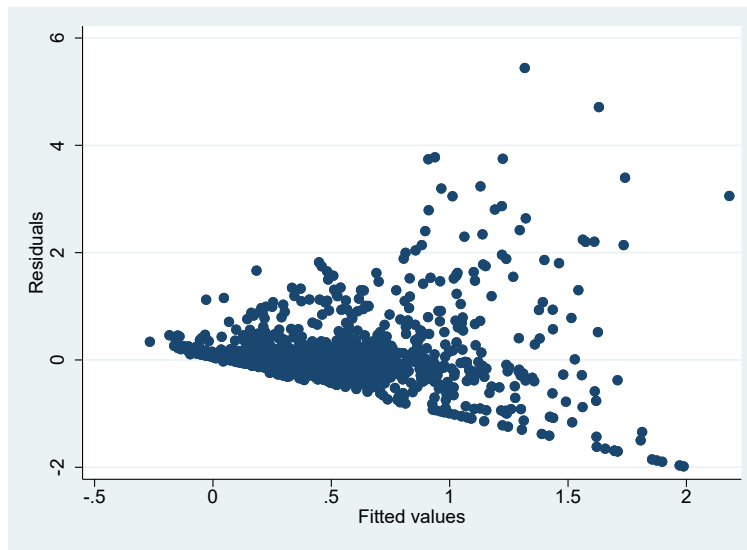


Figure 19 Residual v/s fitted plot for the administrative fee

Figure 17 - Figure 19 show that there is a problem of heteroscedasticity in the models. Table 40 shows the results from the Breusch Pagan test, which indicates that the P-value

is less than 5% thus we reject the null hypothesis and accept the presence of heteroscedasticity.

Table 40 Results from Breusch Pagan tests

Dependent variables	H0: Constant Variance	
TER	Chi (1) = 2091.07	Prob > chi2 = 0.0000
MANFEE	Chi (1) = 616.58	Prob > chi2 = 0.0000
ADMINFEE	Chi (1) = 3307.52	Prob > chi2 = 0.0000

Solution

We made some transformations to some variables and used robust standard errors in the regressions. Furthermore, the inclusion of fund fixed effect and year fixed effect dummy variables would help control for unobserved heterogeneity.

Assumption 3: Autocorrelation/serial correlation

Detection/test

Table 41 indicates that the null hypothesis is not rejected thus there is no violation of this assumption of no autocorrelation.

Table 41 Results from Durbin Watson Test

Dependent variables	Durbin-Watson d-statistic (15, 1968)	Decisions
TER	0.3059649	No rejection of null hypothesis
MANFEE	0.4427044	No rejection of null hypothesis
ADMINFEE	0.3444102	No rejection of null hypothesis

Note: H0: no serial correlation

Assumption 4: Multicollinearity

Detection/test

Using the correlation matrix from Table 45 (section 5.5.2), it is observed that there were some high correlations between TER and both management and administrative fees; however, these can be disregarded as these fees are applied in separate models with various corporate governance variables. There was no high correlation between the variables, indicating that there was no violation of the assumption. The VIF test as shown by Table 42 provided a VIF of 1.26 which also indicates that there was a multicollinearity problem.

Table 42 Test for multicollinearity using the VIF

Dependent variables	If VIF<10, no multicollinearity	Decision
TER	Mean VIF 1.31	No multicollinearity
MANFEE	Mean VIF 1.31	No multicollinearity
ADMINFEE	Mean VIF 1.31	No multicollinearity

Assumption 5: Endogeneity

Detection/test

Table 43 shows the results from the Wu-Hausman test, it can be observed that the P-value is not significant which means that there is no problem of endogeneity. The choice and justification of the instruments have been provided in the previous chapter.

Table 43 Test for endogeneity (Wu-Hausman test)

Instruments: Nationality

Dependent variables	H0: Constant Variance	
TER	F(1,1817) =0.255931	(0.6130)
MANFEE	F(1,1817) =0.235565	(0.6275)
ADMINFEE	F(1,1817) =0.219279	(0.6396)

Note: Ho: variables are exogenous

Instruments: Nationality and occupation

Dependent variables	H0: Constant Variance	
TER	F(1,1817) =0.237114	(0.6264)
MANFEE	F(1,1817) =0.191459	(0.6618)
ADMINFEE	F(1,1817) =0.239638	(0.62645)

Note: Ho: variables are exogenous

5.5 Descriptive statistics and correlation matrix

5.5.1 Descriptive statistics

Table 44 shows the descriptive statistics for the variables used in this chapter. Since the independent variables and control variables have been described in detail in chapter 3; the aim is to center the description on the dependent variables, TER, MANFEE, and ADMINFEE.

Table 44 Summary statistics of the fees (TER, management fee & administrative fee), corporate governance characteristics, dummy variables, and control variables

Variables	Observation	Mean	Standard deviation	Minimum	Maximum
TER	2,214	1.47	1.20	0.004	11.28
MANFEE (%)	2,214	0.89	0.70	0.00	8.74
ADMINFEE (%)	2,214	0.47	0.63	0.00	6.76
BSIZE	2,214	5.46	1.38	3.00	16.00
FEM_2	1,968	9.78	13.26	0.00	66.67
LNAGE	2,214	4.09	0.07	3.81	4.32
LNTEN	2,214	2.04	0.31	0.00	2.94
DOWN	2,214	0.02	0.08	0.00	0.68
SOWN	2,214	0.35	0.21	0.00	0.94
AUD	2,214	0.19	0.40	0.00	1.00
SHARE	2,160	0.36	0.48	0.00	1.00
LNMCAP	2,214	23.37	1.36	16.67	26.98
FUGE	2,214	47.44	40.12	1.00	149.00
GEAR	2,214	0.14	0.16	0.00	1.70
DIV	2,214	0.10	13.36	-544.31	260.00

Fees

Table 44 presents the descriptive statistics for the various characteristics for the sample of 123 investment trusts used in this chapter; the analysis will focus mainly on the total expense ratio and other fees. The table shows that TER has a minimum of 0.04% and a maximum of 11.28%, which showcase two extreme fees. Upon investigation, it is observed that the sample fees have a mean of 1.17% along with a lower and upper quartile of 0.85% and 1.66% respectively. Some of these figures are below the average fees charged by UK funds. Morningstar (2019) reports that the average fees charged by UK equity funds were 0.95% in 2019, they experienced a decrease of 26% from the prior year.

The variables - total expense ratio (TER), management fee, and administrative fee, are considered as the dependent variables. Although the last two fees are included in the TER, the decision to focus on both individually is due to their importance. The management fee is payable to the fund manager, it accounts for 63.8% of the total average fees of the funds in this sample (Figure 16). The managers have been entrusted with the investors' capital; therefore, the board must oversee the activities of the managers to ensure that their interests are aligned with the investors. The management fee can be used as a tool to curtail any agency conflicts. The average administrative fee accounts for 29.8% of the total fees, which is the second-highest fee that makes up the TER. The board of directors should be also focusing on keeping these fees low.

Mithras Investment Trust (MTH) had the highest TER in 2002 with a fee of 10.54%, the management fee for the trust accounted for 66% of the expenses for the fund; the high management fee led to the TER being quite exorbitant. The fund also witnessed the same occurrence in the prior year where TER was 9.87%, in this case, management fees accounted for 70% of the total expenses. This implies that the investment management team was compensated quite heftily under the supervision of the board, however further analysis in the next section will indicate whether good performance is being reciprocated.

New Star Investment Trust PLC (NSI) had a TER of 0.04% due to high net assets while expenses were way below the average total expenses. In this sample, 6 investment trusts had a management fee of 0. It has been found that some of these funds such as Aurora Trust (ARR) have entered an agreement with the management team, and Phoenix has to

pay an annual performance fee rather than the management fee. Funds such as Martin Currie Asia Unconstrained Trust (MCP) and Electra Private Equity Ltd (ELTA) are self-managed and therefore there are no fees that are paid to the managers.

Over the years, the average management fees have contributed a substantial portion of 66% to the total fees; the lowest contribution was after the financial crisis (2009: 60.45%) whilst the higher contribution was in the year 2000 (73.06%). Generally, the administrative fees for an investment trust include registrar fees (e.g.: expenses linked with the distribution of income to investors, fees connected to listing on the stock market, report, and account fees), custody fees, and regulatory fees. Similar to the management fees, the administrative fees are quite high for investment trusts.

5.5.2 Correlation matrix

In this section, the correlation matrix between the fees charged to investors and the corporate governance characteristics is presented, focusing on the total expense ratio which is then dissected to focus on the management fee and administrative expenses as they contribute mainly to the TER. Firstly, the focus laid on the correlations between each characteristic and the fees, to gather a better understanding of the relationship. Table 45 for the correlation matrix also includes the test for multicollinearity as presented by the VIF, the results presented the VIF being lower than 2, thus indicating no multicollinearity.

The correlation table shows a significant and negative relationship between TER and market capitalization (-0.4183) and fund age (-0.2152). This relationship can potentially imply that: firstly, older funds have been able to amass more investors' capital over time which has led to the creation of more shares outstanding. Thus, a higher market

capitalization may be due to higher shares outstanding rather than an increase in share prices. Therefore, if the fees are based on the net asset, it is affected by the wealth of the investors. Secondly, if the funds have good corporate governance whereby the board and NEDs are carrying out effective monitoring, larger funds will have better oversight and would encourage lower fees to be charged to investors.

The remuneration paid to the directors is included in the TER and therefore not observed individually in this chapter. It can be argued that an increase in the remuneration would affect the TER, and a potential increase in the board size would lead to higher remuneration. The results between TER and board size are significant and negative (-0.1393), which could dictate that although the board expands the remuneration does not follow suit. Furthermore, it can also be debated whether larger boards cast a higher level of attention onto the managers, which allows for the latter to work more diligently in maximizing shareholders' wealth.

The relationship between female directors and tenure is negative and significant (-0.1226), which entails that woman hold their directorship position for less period. Fuhrmans (2019) reported that the inclusion of women on the board has been slower due to the lack of available positions. The directorship position is preserved by older men who typically have a tenure longer than a decade. Therefore, this negative relationship can be anticipated, especially when certain companies are worried that limiting term limits pose a risk in upsetting the dynamic of the board as well as shedding valuable information on the funds. However, the positive relationship between female directors and fund age (0.1715) shows that although their inclusion is slow; there is some progress.

The correlation between the corporate governance variables for both management fees and administrative fees presents a similar picture as the TER. There is a negative correlation between female directors and management fees, which could highlight that the presence of women helps lower this fee. The interest payable on debt is not included in the calculation of the TER, we detect that a positive relationship is detected between gearing and fees, which could indicate that as the gearing is increased the fees charged by various parties who are stakeholders (Excluding the shareholders) would demand more compensation to cushion against a potential bankruptcy.

Table 45 The Pearson correlation matrix for the variables with fees

	VIF	TER	MANFEE	OTHERFEE	BSIZE	FEM_2	AGE	TEN	SOWN	DOWN	AUD	SHARE	MCAP	FUGE	GEAR	DIV
TER		1														
MANFEE		0.8359*	1													
OTHERFEE		0.8035*	0.3573*	1												
BSIZE	1.44	-0.1393*	-0.0548	-0.1582*	1											
FEM_2	1.2	-0.0863*	-0.0307	-0.1162*	0.0205	1										
AGE	1.29	-0.0206	0.0052	-0.0488*	-0.0235	0.0052	1									
TEN	1.23	0.0176	0.0246	-0.0025	-0.0299	-0.1226*	0.3101*	1								
SOWN	1.16	0.0539*	0.0613*	-0.002	-0.0630*	-0.0034	0.0427*	0.0810*	1							
DOWN	1.48	0.0727*	0.1429*	-0.0371	-0.2365*	-0.0671*	0.1393*	0.0893*	0.0647*	1						
AUD	1.14	-0.0256	0.018	-0.0515*	-0.0763*	0.2169*	0.0272	0.0219	-0.0397	-0.0116	1					
SHARE	1.04	-0.0379	-0.0041	-0.0734*	0.0277	-0.0505*	0.0502*	0.0384	-0.018	-0.0052	0.0647*	1				
MCAP	2.97	-0.4183*	-0.3959*	-0.2409*	0.4774*	0.2062*	0.1152*	-0.1104*	-0.1986*	-0.2900*	0.1085*	0.0014	1			
FUGE	1.51	-0.2152*	-0.0787*	-0.2553*	0.2669*	0.1715*	-0.0530*	-0.0647*	-0.1606*	-0.0642*	0.0838*	0.0291	0.4528*	1		
GEAR	1.17	0.2118*	0.2318*	0.1194*	-0.1156*	0.021	-0.0874*	-0.1108*	-0.0915*	-0.0317	0.0071	-0.015	-0.1303*	0.0266	1	
DIV	1.01	-0.018	-0.0196	-0.0081	0.0227	0.0071	0.0232	0.0036	0.0151	-0.0017	0.0145	0.0035	0.0094	0.0055	0.0028	1
Mean VIF	1.40															

Note: Results are based on 123 UK investment trusts between the periods of 2000-2017. The test is statistically significant at 5%, a star (*) appear next to the correlation coefficient

5.6 Results and analysis

In this section, the results obtained through the regression results and discuss the link between corporate governance and the fees in investment trusts through the agency theory lens.

Board size

We observe a positive and significant relationship between board size and TER ($\beta = 0.000868$, $p < 0.01$). This implies that there will be an increase of 0.0868% in TER in the presence of a larger board (Table 46, column 7). There is also a similar relationship between the board and the administrative expenses where the fees increase by 0.0255% when board size increases (Table 48 column 7). It can be argued that as the boards are enlarged, higher remuneration needs to be rewarded therefore generating a larger total expense ratio. These higher remunerations can also be incurred to compensate directors for their experience and knowledge which would have a positive effect on monitoring the investment managers. This finding supports the proposed hypothesis and also corroborates with Bozec and Dia (2017) and Farooq et al. (2018) where they detected a positive relationship between board size and audit fee.

We can argue that the board of directors is more likely to seek better audit quality services to minimize the risk of fraudulent activities and enhance external monitoring, this argument can be supported by the positive correlation of 0.2790⁴³, observed between board size and audit fees. This argument can be further supported by DeFond and Zhang (2014), who noticed that changes brought Sarbanes-Oxley Act (2002) led firms to demand

⁴³ See Appendix C

better audit quality and independent boards. In the context of investment trusts, the board of directors is fully comprised of NEDs and they might be willing to pay a higher fee for more extensive audit procedures to avoid agency problems.

It can also be argued that as the boards are enlarged, higher remuneration needs to be rewarded therefore generating a larger total expense ratio. These higher remunerations can also be incurred to compensate directors for their experience and knowledge which would have a positive effect on monitoring the investment managers. Therefore, with a combination of greater external monitoring from the auditors charging greater fees and more independent directors on the board creating a larger remuneration fee, there would be better detection of conflicting interests thus reducing the agency costs.

When we investigate the relationship between board size and administrative fee/net separately, without considering the other corporate governance variables we detect a positive and statistically significant relationship. In the defense of the directors, it can be reasoned that there is less flexibility in exercising control on the fees attached to administrative fees such as the fees in connection to the listing on the stock exchange and the publication of the annual reports and accounts. However, the directors could have some input regarding the fee of the auditors that the funds employ. The results also show that larger board size does not influence management fees which could be associated with a weak or entrenched board (Table 47). The presence of a large board could lead to dispersed decision-making amongst the directors, leading to higher fees to the detriment of the investors.

Female directors

Our finding shows a positive and significant relationship between female directors and TER ($\beta = 0.0000471$, $p < 0.05$). This result shows that compared to the appointment of a male director, with an additional female director appointment (two years ago), the

TER will increase 0.00471% in the present year (Table 46 column 7). We also observe an increase of 0.00325% when the administration fee is used as a dependent variable (Table 48, column 7). Gull et al. (2017) found that women tend to be more independent and diligent in their role as directors; thus, they can have a better influence on the fees charged to investors. Thus, we can argue that having a board with diverse expertise including gender diversity can be the main factor to prompt for greater audit quality.

Furthermore, it is claimed that female directors exhibit higher ethical standards (Adams and Ferreira, 2009) and Lai et al. (2017) showed that the presence of female directors in US firms led to a 6% increase in audit fees. We propose that the presence of female directors on the board can enhance oversight by seeking higher audit quality. We have observed a lack of literature on the relationship between female directors and fees of closed-end funds. Therefore, we help contribute to the agency theory by showing evidence that female directors have an impact on fees and act as effective monitors thus reducing agency conflict.

Age of directors

We proposed that there will be a positive relationship between age and fees, our finding corroborates with the hypothesis whereby the director's age and TER are positively related ($\beta = 0.0165$, $p < 0.05$) as shown in Table 46 (Column 7). This implies that the presence of older directors increases the TER that the funds charge to the shareholders. Even though older directors possess more experience and knowledge, they might not be proactive in challenging the investment team to reduce expenses for the investment trusts which would lead to a higher total expense ratio. Furthermore, as age diversity increases on the board, it can sometimes lead to the creation of sub-groups whereby conflicts arise amongst the directors. Amongst the subgroup, there are heterogeneous views and sometimes the decision is based on the majority.

Finke et al. (2017) argued that the confidence of dealing with financial decision making does not decline as individual ages, however, we can argue that older directors may take longer to make decisions and integrate new information in their decision making leading to higher fees in the short term for the shareholders (Taylor, 1975). Lai et al. (2017) finds that age diversity on the board can help diminish groupthink as younger directors are more likely to seek more information prior to making decisions. It can be argued that the diversity on the board can often lead to the creation of subgroups amongst the directors. When these subgroups are formed, conflicts can also arise whereby the directors will be focused more on the internal conflicts rather than their duties of monitoring the managers which can lead to greater agency conflicts. Furthermore, if the board is dominated by older directors, they may be less prone to oversee the fees of the funds as they may prefer to utilize their time for their interest.

Market capitalization

The research's investigation resulted in findings showing the presence of a negative relation between the size of the fund and all measures of fees for the investment trusts. When the size of an investment trust increases, TER decreases by -0.185% (Table 46 column 7), and administrative fee decreases by -0.132% (Table 48 column 7). Navone and Nocera (2016) focused on the distribution costs across European mutual funds and found that UK funds tend to be larger than other funds, and they are usually managed by larger investment companies that allow them to benefit from economies of scale. Adams et al. (2012) also detected a negative relationship between expense ratio and total net asset, which is a proxy for size. This reasoning can be replicated for the chosen sample, whereby larger investment trusts would be able to benefit more from the economies of scale when focusing on costs related to research on investment opportunities, therefore reducing the fees that are charged.

Fund age

There is a significant and negative relationship between fund age and management fee ($\beta = -0.000193$, $p < 0.01$), Low (2017) also found that older equity funds lead to a lower expense ratio. It can be argued that older investment trusts are more experienced in the industry and are more efficient in picking the investment managers to keep the fees low. Older equity funds become more cost-effective as their long existence in the market creates more learning experiences. Belgacem and Hellara (2011) found a positive and significant difference between the age of Tunisian mutual fund and alpha, in their study the mean age is 8.28 whilst in this current study, it is 47. It can be seen that the investment trusts in this sample have longer longevity, which could infer that older fund are associated with the existence of economies of experience. Furthermore, it can also be debated whether older investment trusts which potentially have a more reputed presence in the fund industry may attract investment managers who would like to provide their services and would not exaggerate when negotiating their management fees.

Gearing

Investment trusts can borrow capital to expand their investments, which increases their finance costs; the results of the current research show a significant and positive relationship between gearing and fees. When gearing increases in the funds, TER increases by 2.03% (Table 46 column 7), management fee increases by 0.891% (Table 47 column 7), and administrative fee increases by 0.841% (Table 48 column 7). It can be

proposed that the inclusion of more debt in the funds, propels the funds in a riskier position. Therefore, the investors wouldn't hesitate to ensure that the agents (board of directors and investment managers) are well remunerated as this will prompt the latter to ensure that interest on the debt is repaid on time whilst also securing a larger return. This reasoning could explain the positive relationship between both TER and management fee – this is in line with what was found by Guasoni and Obloj (2016) with respect to hedge funds.

Dividend payout

The relationship between dividend payout and TER is positive and significant ($\beta = 0.00121$, $p < 0.05$) as shown by Table 48 (Column 2), implying that a dividend increase will increase TER by 0.128%. It can be argued that when the board of directors and fund managers decide to pay out dividends, investors receive a positive signal that the investment trusts are performing well. Therefore, investors are willing to pay a higher fee to benefit from the expertise of the agents of the funds. Johnson et al. (2006) finds that US closed-end funds that adopt the payment of minimum dividend yields experience a reduction in share undervaluation, which means that share price is increased and becomes closer to NAV hence reducing discount.

Table 46 Regression with fund and year fixed effect using fees (TER)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS
	TER	TER	TER	TER	TER	TER	TER
BSIZE	0.000798***						0.000868***
	(0.000266)						(0.000298)
FEM_2		2.01e-05					4.71e-05**

		(1.82e-05)					(2.22e-05)
LNAGE			0.00816*				0.0165**
			(0.00429)				(0.00703)
LNTEN				0.000257			-0.000617
				(0.000816)			(0.00117)
SOWN					0.000136		-0.000242
					(0.000917)		(0.00140)
DOWN						0.00995*	0.00820
						(0.00554)	(0.00806)
AUD	-0.000545	-2.66e-05	8.92e-05	4.85e-05	4.19e-05	0.000129	-0.000205
	(0.000666)	(0.000489)	(0.000472)	(0.000473)	(0.000475)	(0.000465)	(0.000631)
SHARE	0.000611	0.000217	0.000213	0.000235	0.000238	0.000236	0.000381
	(0.000404)	(0.000323)	(0.000332)	(0.000335)	(0.000333)	(0.000332)	(0.000391)
LNMCAP	-0.00181***	-0.00301***	-0.00265***	-0.00269***	-0.00270***	-0.00270***	-0.00185***
	(0.000566)	(0.000636)	(0.000510)	(0.000510)	(0.000518)	(0.000513)	(0.000701)
FUGE	-6.41e-07	-6.28e-05	6.54e-06	3.87e-05	4.34e-05	4.15e-05	-0.000193
	(0.000137)	(0.000111)	(8.40e-05)	(8.58e-05)	(9.07e-05)	(9.01e-05)	(0.000147)
GEAR	0.0226***	0.0177***	0.0197***	0.0199***	0.0199***	0.0202***	0.0203***
	(0.00417)	(0.00414)	(0.00359)	(0.00363)	(0.00363)	(0.00366)	(0.00426)
DIV	-6.37e-05	6.67e-06	8.97e-06	8.80e-06	8.75e-06	8.39e-06	5.13e-05
	(0.000138)	(6.28e-06)	(6.37e-06)	(6.47e-06)	(6.46e-06)	(6.53e-06)	(8.82e-05)
Constant	0.0503***	0.0848***	0.0422**	0.0750***	0.0756***	0.0757***	-0.0119
	(0.0127)	(0.0140)	(0.0194)	(0.0116)	(0.0118)	(0.0115)	(0.0319)
Observations	1,099	1,920	2,160	2,160	2,160	2,160	976
R-squared	0.728	0.780	0.746	0.745	0.745	0.746	0.775
Fund FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. The variables used are as follows: TER= Total expense ratio - it has been scaled down by 100 , BSIZE = Board size, , FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

Table 47 Regression with fund and year fixed effect using fees (MANFEE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS
	MANFEE	MANFEE	MANFEE	MANFEE	MANFEE	MANFEE	MANFEE
BSIZE	0.000183						0.000500***
	(0.000174)						(0.000180)
FEM_2		-1.80e-05*					2.26e-07
		(1.07e-05)					(1.17e-05)
LNAGE			8.02e-05				0.00474
			(0.00264)				(0.00395)
LNTEN				0.000225			0.000546
				(0.000553)			(0.000624)
SOWN					0.000713		2.02e-06
					(0.000574)		(0.000816)
DOWN						0.00355	0.000524

						(0.00261)	(0.00376)
AUD	-0.000464 (0.000406)	-0.000423 (0.000296)	-0.000436 (0.000300)	-0.000431 (0.000299)	-0.000436 (0.000302)	-0.000405 (0.000300)	-0.000104 (0.000374)
SHARE	0.000416 (0.000258)	0.000169 (0.000214)	0.000276 (0.000225)	0.000274 (0.000226)	0.000280 (0.000225)	0.000276 (0.000224)	0.000221 (0.000245)
LNMCAP	-0.000260 (0.000285)	-0.000743** (0.000317)	-0.000666** (0.000282)	-0.000658** (0.000284)	-0.000653** (0.000285)	-0.000666** (0.000283)	-0.000185 (0.000336)
FUGE	-0.000165* (8.99e-05)	-9.86e-05* (5.76e-05)	-9.19e-05 (5.80e-05)	-9.57e-05 (5.86e-05)	-9.24e-05 (6.28e-05)	-9.22e-05 (6.26e-05)	-0.000193*** (7.27e-05)
GEAR	0.00927*** (0.00225)	0.00984*** (0.00186)	0.0104*** (0.00164)	0.0104*** (0.00165)	0.0104*** (0.00165)	0.0105*** (0.00165)	0.00891*** (0.00215)
DIV	8.11e-05 (7.64e-05)	-5.18e-06 (3.45e-06)	-3.39e-06 (3.22e-06)	-3.33e-06 (3.21e-06)	-3.28e-06 (3.21e-06)	-3.52e-06 (3.19e-06)	2.50e-05 (5.28e-05)
Constant	0.0167** (0.00688)	0.0285*** (0.00691)	0.0255** (0.0124)	0.0252*** (0.00666)	0.0252*** (0.00642)	0.0259*** (0.00632)	-0.00696 (0.0179)
Observations	1,099	1,920	2,160	2,160	2,160	2,160	976
R-squared	0.494	0.687	0.625	0.625	0.625	0.625	0.557
Fund FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. The variables used are as follows: MANFEE= management fee - it has been scaled down by 100, BSIZE = Board size, FEM_2 = Female directors, which have been lagged by 2 years, LNAME = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

Table 48 Regression with fund and year fixed effect using fees (ADMINFEE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS
	ADMINFEE	ADMINFEE	ADMINFEE	ADMINFEE	ADMINFEE	ADMINFEE	ADMINFEE
BSIZE	0.000456*** (0.000160)						0.000255* (0.000150)
FEM_2		3.08e-05*** (1.00e-05)					3.25e-05** (1.34e-05)
LNAME			0.00683*** (0.00217)				0.00834** (0.00356)
LNTEN				0.000202 (0.000392)			-0.000668 (0.000621)
SOWN					-0.000621 (0.000552)		-0.000502 (0.000861)
DOWN						0.00741 (0.00476)	0.00759 (0.00714)
AUD	-0.000169 (0.000473)	0.000312 (0.000303)	0.000422 (0.000310)	0.000387 (0.000309)	0.000381 (0.000307)	0.000447 (0.000296)	-0.000213 (0.000445)
SHARE	0.000164 (0.000247)	-1.06e-05 (0.000170)	-0.000118 (0.000176)	-9.99e-05 (0.000177)	-0.000100 (0.000176)	-9.86e-05 (0.000175)	0.000135 (0.000234)
LNMCAP	-0.00121*** (0.000313)	-0.00177*** (0.000330)	-0.00153*** (0.000266)	-0.00157*** (0.000266)	-0.00159*** (0.000272)	-0.00158*** (0.000268)	-0.00132*** (0.000369)

FUGE	0.000126** (6.31e-05)	1.06e-05 (5.45e-05)	7.01e-05* (3.90e-05)	9.72e-05** (4.01e-05)	0.000102** (4.14e-05)	9.95e-05** (4.10e-05)	2.87e-07 (7.59e-05)
GEAR	0.0100*** (0.00249)	0.00645** (0.00257)	0.00812*** (0.00222)	0.00832*** (0.00224)	0.00830*** (0.00224)	0.00850*** (0.00225)	0.00841*** (0.00250)
DIV	-0.000122 (0.000155)	1.21e-05** (5.78e-06)	1.32e-05** (6.03e-06)	1.31e-05** (6.12e-06)	1.29e-05** (6.12e-06)	1.28e-05** (6.19e-06)	3.08e-05 (6.55e-05)
Constant	0.0269*** (0.00691)	0.0447*** (0.00735)	0.0109 (0.00961)	0.0384*** (0.00598)	0.0396*** (0.00625)	0.0390*** (0.00605)	0.000223 (0.0160)
Observations	1,099	1,920	2,160	2,160	2,160	2,160	976
R-squared	0.752	0.783	0.748	0.746	0.746	0.747	0.803
Fund FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES

Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. The variables used are as follows: ADMINFEE= administrative fee - it has been scaled down by 100, BSIZE = Board size, , FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

5.7 Robustness tests

In this section, the robustness of the models is tested by carrying out three robustness checks. At first, the focus is on the various sectors where investments are made by the fund managers, then the regressions during the financial crisis period (2007-2009) are carried out, and lastly, all periods between 2000-2017 are considered except the financial crisis period (2007-2009).

5.7.1 Different sectors

In this part, regressions are carried out to assess the performance of investment trusts across various sectors. When investing in equity, investors often choose sectors allowing them to reach their financial goals whilst considering their risk tolerance. Some sectors

such as the UK All companies, tend to be less volatile than Sector specialists (e.g.: zero dividends and securitized debt); thus influencing the level of fees being charged. Investors with higher risk tolerance choose more volatile sectors, Table 49 shows that fees on average range between 0.25%-0.91%, however, the maximum fee allows us to view the difference between the various sectors. The maximum fees that investment trusts can charge when they invest in flexible investment are 7.41%. This investment tends to be more volatile due to the nature of the portfolio that is built based on a mixed-asset concept whereby the managers exert flexibility in the investment depending on the market environment.

Table 49 Average fees across various sectors throughout 2000-2017 and the average return

Sector	Minimum fee (%)	Maximum fee (%)	Average fee (%)	Average return (%)
Asia pacific	0.04	2.22	0.51	11.59
Europe	0.14	3.82	0.48	11.50
Flexible investment	0.06	7.41	0.92	7.88
Global	0.0014	5.94	0.51	15.59
North American & Latin	0.04	2.22	0.59	12.60
Private equity	0.08	2.11	0.49	12.95
Sector specialist	0.02	7.35	0.73	14.86
UK All companies	0.05	2.55	0.48	11.61
UK equity	0.02	4.82	0.61	7.65
UK smaller companies	0.04	0.62	0.25	12.74

Note: Returns obtained from Trustnet for funds in these sectors for the year 2015-2019; the average was computed

Table 50 Regression with fund and year fixed effect using fees (TER, MANFEE and ADMINFEE) between 2000-2017 with sector dummies

VARIABLES	(1) OLS TER	(2) OLS ADMINFEE	(3) OLS MANFEE
BSIZE	0.000868*** (0.000298)	0.000255* (0.000150)	0.000500*** (0.000180)
FEM_2	4.71e-05** (2.22e-05)	3.25e-05** (1.34e-05)	2.26e-07 (1.17e-05)
LNAGE	0.0165** (0.00703)	0.00834** (0.00356)	0.00474 (0.00395)
LNTEN	-0.000617 (0.00117)	-0.000668 (0.000621)	0.000546 (0.000624)
SOWN	-0.000242 (0.00140)	-0.000502 (0.000861)	2.02e-06 (0.000816)
DOWN	0.00820 (0.00806)	0.00759 (0.00714)	0.000524 (0.00376)
AUD	-0.000205 (0.000631)	-0.000213 (0.000445)	-0.000104 (0.000374)
SHARE	0.000381 (0.000391)	0.000135 (0.000234)	0.000221 (0.000245)
ASIAPACIFIC	-0.000680 (0.00118)	0.00114* (0.000603)	-0.00157** (0.000656)
EUROPE	-0.0102*** (0.00191)	-0.00357*** (0.000991)	-0.00636*** (0.00127)
FLEXIBLEINVESTMENT	-0.00682 (0.00471)	-0.00392 (0.00242)	-0.00194 (0.00247)
GLOBAL	-0.00443** (0.00204)	-0.00264*** (0.000786)	-0.00184 (0.00169)
NORTHAMERICA	-0.00629*** (0.00201)	-0.00210* (0.00113)	-0.00418*** (0.00128)
SECTOR	0.0211*** (0.00725)	0.0189*** (0.00526)	-0.00283 (0.00285)
UKALLCOM	-0.00744*** (0.00197)	-0.00378*** (0.000956)	-0.00334** (0.00132)
UKEQUITY	0.00771 (0.0137)	-0.00379 (0.00711)	0.0121* (0.00677)
UKSMALLERCOM	-0.0107*** (0.00203)	-0.00328*** (0.00108)	-0.00720*** (0.00121)
LNMCAP	-0.00185*** (0.000701)	-0.00132*** (0.000369)	-0.000185 (0.000336)

FUGE	-0.000193 (0.000147)	2.87e-07 (7.59e-05)	-0.000193*** (7.27e-05)
GEAR	0.0203*** (0.00426)	0.00841*** (0.00250)	0.00891*** (0.00215)
DIV	5.13e-05 (8.82e-05)	3.08e-05 (6.55e-05)	2.50e-05 (5.28e-05)
Constant	-0.00497 (0.0320)	0.00119 (0.0161)	-0.00121 (0.0180)
Observations	976	976	976
R-squared	0.775	0.803	0.557
Fund FE	YES	YES	YES
Year FE	YES	YES	YES

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: TER= Total expense ratio - it has been scaled down by 100, MANFEE= management fee/net assets - it has been scaled down by 100, ADMINFEE= administrative fee/net assets - it has been scaled down by 100, BSIZE = Board size, FEM_2 = Female directors, which have been lagged by 2 years, LNAME = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout. Dummy sectors include Asia pacific, Europe, Flexible investment, Global, North American & Latin, Private equity, Sector specialist, UK All companies, UK equity and UK smaller companies.

The inclusion of the sector dummy shows similar results as the main results. We observe similar results compared to the main results when observing the relationship between TER and various corporate governance characteristics such as the board of directors ($\beta = 0.000868$, $p < 0.01$), female directors ($\beta = 0.000000471$, $p < 0.05$), and age of the directors ($\beta = 0.0165$, $p < 0.05$) as shown by Table 50 (Column 1). There is also a positive and significant relationship is detected between age and administrative fees ($\beta = 0.00834$, $p < 0.05$) as shown by Table 50 column 2. Agarwal et al. (2009b) detect that older directors allow for more borrowings to take place, as their decisions are affected by cognitive impairment. It can be assumed that if there are any finance costs related to the borrowings it will have an impact on the fees, mainly administrative costs. Therefore, it can be argued that older directors may exert less attention in curtailing fees such as borrowing costs which ultimately affect the investors.

When focusing on the global (equity) sector, some measures of fees have a significant and negative relationship, TER ($\beta = -0.00443$, $p < 0.05$) and administrative fee ($\beta = -0.00264$, $p < 0.001$). It can be argued that this sector allows for the funds to make investments in equities from various countries which helps diversify risk, and therefore they would charge the investors fewer fees. Majedie Investments PLC is an investment trust in this sector, their equity investment was spread across the UK, North America, Europe, the Global emerging market, and the Asia Pacific. From those investment trusts' composition, although they invest in Emerging markets which could be risky, their diversified portfolio helps secure a good return, as it can be seen from Table 49 the average return for the global sector was 15.59% whilst the average fees were only 0.51%.

We observe a positive and significant relationship between sector specialists and TER ($\beta=0.0211$, $p<0.01$) as shown by Table 50 column 1. Investment trusts focusing on specialist sectors typically invest in sectors such as energy, technology, artificial intelligence, and biotechnology. It can be argued that there is an increase in fees when the fund focuses on this sector as there is increased volatility and the managers are typically restricted on their investment choices. There is also a positive relationship between the sector, Asia pacific, and administrative fee ($\beta= 0.00114$, $p<0.05$) as shown by Table 50 column 2. When investors are exposed to this sector they are met with a dynamic mix of opportunities from various countries which have been selected from extended research thus leading to an increase in administrative fees.

5.7.2 Financial crisis

Prior to the financial crisis, the average TER was facing a decline reaching 1.35% in 2007 (Figure 22), after the event, the fees started to rise until 2010. Batchelor (2005) reported that the Financial Services Authority implemented the regulation whereby UK funds had to reveal all the costs imposed on investors which made up the TER. It can be argued that

this regulation leads investment trusts to reduce their fees due to the transparency requirement. However, it can also be reasoned that funds would be concerned about the reduction of their fees due to the presence of their competitive counterparts; open-end funds such as unit trusts and the pressure for fee reduction could have been directed from actions taken by the board of directors.

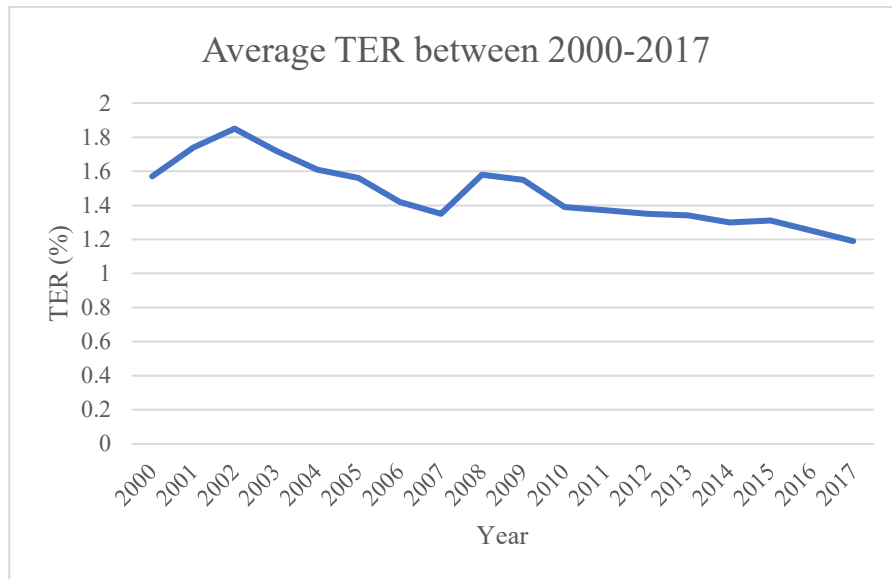


Figure 20 shows the average TER of 123 investment trusts

Figure 23 shows a breakdown of several components which make up the TER; the management fee decreased by 13.41% between 2007-2009. After the financial crisis, investment trusts could have disallowed the service of specialized investment managers, who could potentially have been charging higher fees for the bigger risks they took to provide better returns. During the same period, the other fees have increased; it could be argued that the increase of administrative costs were associated with the different activity such as the transaction costs from the sale and purchase of securities along with the calculation of the fund's value daily, which could have been carried out with a higher frequency during the tumultuous period.

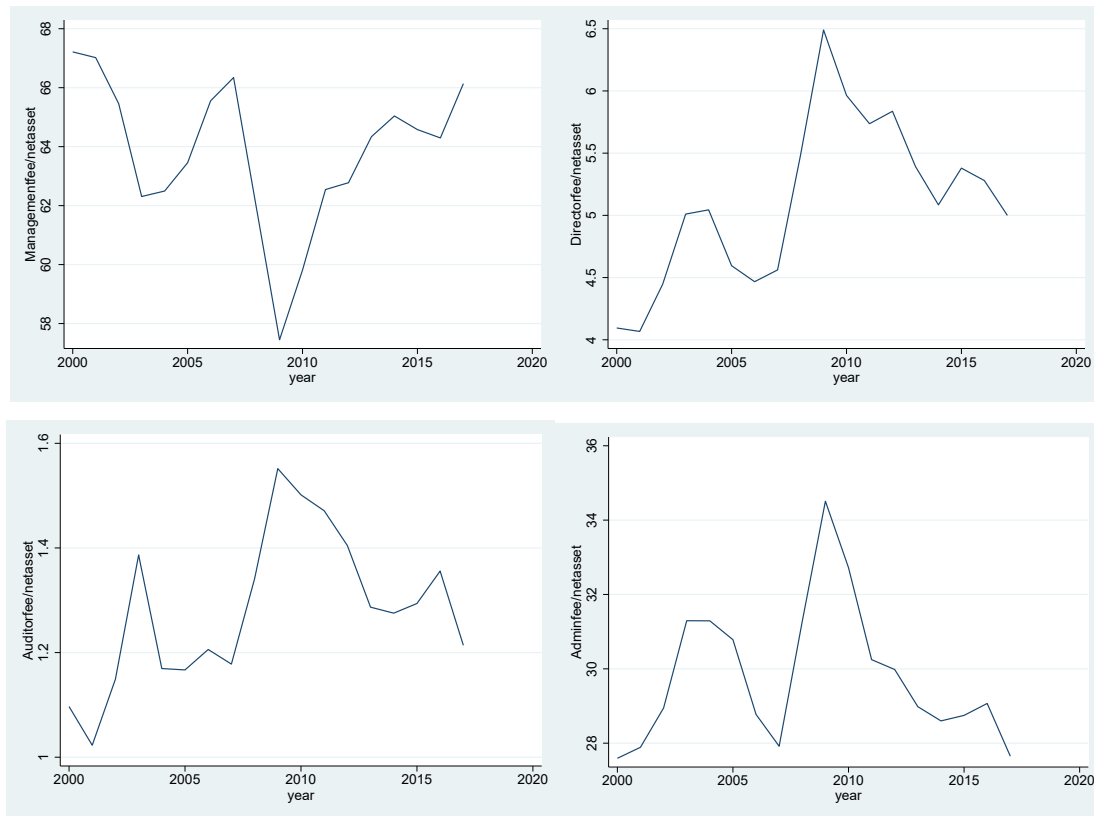


Figure 21 The components of the TER

Note: Management fee, director’s fee, auditor fee, and administrative fee

(Clockwise from top left)

However, between 2007-2008, when focusing on the director’s fees and auditor fees, they both experienced an increase of 20.25% and 13.841% respectively. It was evident that the decisions of some directors contributed to the financial crisis, therefore an increase above 20% seems unfitting during the crisis towards the investors; the same argument can be derived for the auditors’ fees. These findings lead to the idea that an agency conflict may have been present before and during the crisis whereby the directors and auditors cared

only about their fees. Thomas (2019) recorded an increase of nearly 30% in the remuneration of UK NEDs since the financial crisis, which prompts the questioning of whether agency conflicts are persistent in the investment trusts.

When considering the period of the financial crisis (2007-2009) from Table 51, we observe that there is no significance between fees and corporate governance characteristics such as board size, female directors, and age of the directors. It can be argued that during the financial crisis, the market is more volatile and there would be several factors other than corporate governance that could affect the investment trusts. We observe a positive relationship between the tenure of the directors and TER during the crisis ($\beta = 0.0107$, $p < 0.05$) as shown by Table 51 column 1. The same relationship can be found when focusing on management fees ($\beta = 0.0052$, $p < 0.05$). It can be argued that directors with longer tenure would possess better experience which would be helpful during the crisis. These directors would have concluded that underperforming managers must be replaced, and hiring new managers would come at a higher cost thus an increase in the management fee.

The presence of substantial holders and the board of directors are supposed to act as a mechanism to curtail agency conflicts by keeping fees charged to investors low. The result from Table 51 column 3 shows that during the crisis, the relationship between substantial ownership and management fee has been positive ($\beta = 0.0115$, $p < 0.05$) which indicates that a higher management fee is charged when there are more substantial holders. It can be argued that during the financial crisis, the substantial holders deemed the situation appropriate to seek the help of investment managers possessing better expertise, thus incurring a higher management fee. Conversely, it can be argued that potential conflicting interest exists amongst the substantial holders, whereby their goal is diverging from individual investors; they might have a close relationship with the investment managers.

Table 51 Regression with fund and year fixed effect using fees (TER, MANFEE, and ADMINFEE) during the financial crisis (2007-2009)

	(1) OLS TER	(2) OLS ADMINFEE	(3) OLS MANFEE
BSIZE	-0.00155 (0.00140)	-0.000700 (0.000782)	-0.00109 (0.000761)
FEM_2	0.000209 (0.000136)	0.000127 (8.12e-05)	5.77e-05 (5.98e-05)
LNAGE	-0.0345 (0.0383)	-0.0132 (0.0214)	-0.0216 (0.0240)
LNTEN	0.0107** (0.00520)	0.00415 (0.00329)	0.00522** (0.00246)
SOWN	0.00966 (0.00671)	-0.000402 (0.00311)	0.0115** (0.00570)
DOWN	-0.107** (0.0442)	-0.0759*** (0.0285)	-0.00806 (0.0177)
AUD	-0.00371 (0.00367)	-0.00193 (0.00200)	-0.00143 (0.00222)
SHARE	-0.000687 (0.00149)	-0.000378 (0.000929)	-0.000154 (0.000711)
LNMCAP	-0.00498*** (0.00171)	-0.00204* (0.00104)	-0.00249*** (0.000684)
FUGE	-0.000518 (0.000684)	0.000424 (0.000396)	-0.00119*** (0.000366)
GEAR	0.00947 (0.00754)	0.00204 (0.00443)	0.00704** (0.00349)
DIV	-0.000654 (0.00169)	-0.000912 (0.000962)	0.000429 (0.000619)
Constant	0.255* (0.150)	0.0924 (0.0823)	0.160* (0.0953)
Observations	183	183	183
R-squared	0.885	0.896	0.765
Fund FE	YES	YES	YES
Year FE	YES	YES	YES

Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. The variables used are as follows: TER= Total expense ratio - it has been scaled down by 100, MANFEE= management fee/net assets - it has been scaled down by 100, ADMINFEE= administrative fee/net assets - it has been scaled down by 100, BSIZE = Board size, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

5.7.3 All periods excluding financial crisis

Table 52 Regression with fund and year fixed effect using fees (TER, MANFEE, and ADMINFEE) between the period 2000-2017 excluding the financial crisis period (2007-2009)

	(1) OLS TER	(2) OLS ADMINFEE	(3) OLS MANFEE
BSIZE	0.00135*** (0.000314)	0.000391** (0.000163)	0.000858*** (0.000182)
FEM_2	4.42e-05* (2.27e-05)	3.39e-05** (1.42e-05)	-4.66e-06 (1.17e-05)
LNAGE	0.0196*** (0.00729)	0.00991*** (0.00379)	0.00581 (0.00403)
LNTEN	-0.00178 (0.00129)	-0.00101 (0.000690)	-0.000204 (0.000683)
SOWN	0.000269 (0.00141)	-3.66e-05 (0.000948)	4.77e-05 (0.000786)
DOWN	0.0102 (0.00750)	0.00986 (0.00719)	0.000163 (0.00374)
AUD	-0.000555 (0.000673)	-0.000429 (0.000491)	-0.000180 (0.000394)
SHARE	0.000795* (0.000428)	0.000234 (0.000258)	0.000513* (0.000282)
LNMCAP	-0.00167*** (0.000612)	-0.00133*** (0.000363)	-7.78e-06 (0.000260)
FUGE	-0.000187 (0.000157)	2.66e-06 (8.29e-05)	-0.000180** (7.40e-05)
GEAR	0.0213*** (0.00653)	0.00853** (0.00343)	0.0107*** (0.00307)
DIV	1.76e-05 (9.14e-05)	2.74e-05 (6.49e-05)	-5.10e-06 (6.80e-05)
Constant	-0.0302 (0.0317)	-0.00618 (0.0170)	-0.0170 (0.0170)
Observations	793	793	793
R-squared	0.774	0.797	0.578
Fund FE	YES	YES	YES
Year FE	YES	YES	YES

Notes: Robust standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The variables used are as follows: TER= Total expense ratio - it has been scaled down by 100, MANFEE= management fee/net assets - it has been scaled down by 100, ADMINFEE= administrative fee/net assets - it has been scaled down by 100, BSIZE = Board size, FEM_2 = Female directors, which have been lagged by 2 years, LNAGE = age of directors (ln), LNTEN = tenure of directors (ln), DOWN = director's ownership, SOWN = substantial ownership, AUD = audit tenure, SHARES = share repurchase, LNMCAP = market capitalization (ln), FUGE = fund age, GEAR = gearing, DIV = dividend payout.

We observe a negative relationship between management fee and fund age ($\beta = -0.000180$, $p < 0.05$), this finding corroborates with Gregory et al. (1997), who showed that older and more mature firms benefit from economies of scale. There is a positive relationship between gearing and all measures of fees when the period of the financial crisis is excluded. There is an increase of 2.13% in the TER and 1.07% in management fees as shown by Table 52 (columns 1 and 3 respectively).

5.8 Conclusion

It has been detected that there is a gap in the literature with regards to the fees charged by closed-end funds in the UK. Therefore, in this chapter, the concentration is on examining the relationship between various corporate governance mechanisms and the fees charged by the investment trusts to the investors, with a focus on the total expense ratio, management fees, and administrative fees. The main results have shown that several corporate governance mechanisms such as the board of directors, female directors, and age have a positive and significant relationship with the fees, which highlights a potential presence of the agency conflict. The presence of these mechanisms is hypothesized to

restrain the divergence of the conflict between the investment manager and the wealth maximization for the investors.

It has been argued that gender-diverse boards can be beneficial because the female directors possess different cognitive frames that have been shaped by their experience, which would contribute to the pool of knowledge on the board (Carter et al., 2010). Therefore, it is proposed that the presence of more female directors would be beneficial in reducing the fees of the funds. It is equally observed that there is a positive relationship between female directors and both total expense ratio and administrative fees. It can be argued that curtailing the administrative fees such as brokerage costs, is beyond the control of the board of directors.

However, the average administrative expenses account for only 29.8% of the total fee, the remaining portion of the total fees include the auditor fees, director fees, and management fees. It can be argued that the board can intervene in reducing some of these fees such as the director's remuneration. English et al. (2011) found that the board of directors dismiss managers for not delivering returns that justify the fees that they charge to investors. The argument brought forward is that the presence of female directors may not have resulted in the reduction of fees due to underrepresentation.

The robustness test supports the main findings and most importantly it highlights that the investment in various sectors does have an impact on the fees, riskier sectors such as the specialist sector t have a positive relationship with fees (TER and administrative fees). The duty of the board of directors should be to monitor whether the investment objectives of the funds are aligned with the sectors chosen by the investment managers. It can be argued that the presence of an entrenched board would limit effective monitoring, thus managers could potentially deviate from the original investment objective. And lastly, the results provide some evidence that corporate governance is not effective during the financial crisis. The board and the investment managers could have acted irrationally which led to value destruction for the investors.

CHAPTER 6: CONCLUSION

This chapter emphasizes the “raison d'être” of this research and elaborates on the significance it may have in academia, to investors and policymakers, since the study reinforces the understanding of UK investment trusts and their performance. The empirical chapters tackled corporate governance through various angles, therefore the main findings are unfolded in this section to have a better comprehension of the effects of corporate governance on performance and fees. Lastly, the discussion brings forward the limitations that were encountered throughout the study. The chapter ends with suggestions for further research areas.

6.1 Summary of findings

This section provides a summary of the results acquired from the regressions carried in each empirical chapter.

6.1.1 Performance – ROA & ROE

- The presence of more NEDs helps increase the two accounting-based performance measures - ROA ($\beta=0.112$, $p<0.05$) and ROE ($\beta=0.123$, $p<0.05$)
- Female directors have a positive and significant impact on performance as measured by ROA ($\beta=0.00230$, $p<0.05$) and ROE ($\beta=0.00260$, $p<0.05$)

- Age has a positive and significant relationship with performance - ROA ($\beta=0.821$, $p<0.01$) and ROE ($\beta=0.913$, $p<0.01$)
- We observe that longer tenure reduces both ROA ($\beta=-0.130$, $p<0.05$) and ROE ($\beta=-0.144$, $p<0.05$)
- Remuneration is a significant and negative ($\beta=-1.122$, $p<0.01$)
- There is a positive and significant relationship between ROA and substantial ownership ($\beta=0.166$, $p<0.05$), a similar relationship is found when ROE is used ($\beta=0.184$, $p<0.01$)
- There are no significant findings for the dummy variables, audit tenure, and shares buyback
- Market capitalization has a positive and significant relationship with ROA ($\beta=0.168$, $p<0.001$) and ROE ($\beta=0.192$, $p<0.001$)
- There is a negative relationship between ROE and gearing ($\beta=-0.132$, $p<0.05$). We do not find any significant relationship for ROA when 2SLS is used, however, there is a significant and negative relationship when OLS is used, this finding can be used as a robustness check for the main finding where 2SLS is used.
- Dividend payout is positive and significant with both ROA ($\beta=0.000554$, $p<0.05$) and ROE ($\beta=0.000648$, $p<0.05$)

6.1.2 Performance – Discount

- The presence of more NEDs on the board help reduce discount, thus enhancing performance ($\beta=-0.0222$, $p<0.001$)
- Similar to the previous chapter, age helps improve performance ($\beta=-0.393$, $p<0.1$). There is a negative and significant relationship between discounts

and the age of the directors. However, larger tenure affects performance by widening the discount.

- When substantial ownership increase it help reduce discount ($\beta=-0.3$, $p<0.01$)
- The presence of longer auditor tenure reduces discount ($\beta=-0.0661$, $p<0.05$) and the same applies to shares buyback ($\beta=-0.07$, $p<0.01$)
- There is a positive relationship between discount and the control variables market capitalization ($\beta=0.0322$, $p<0.05$) and fund age ($\beta=0.00115$, $p<0.1$)

6.1.3 Fees – TER, management fee & administrative fee

- There is a positive and significant relationship between the board size and TER ($\beta=0.000868$, $p<0.01$), management fee ($\beta=0.0005$, $p<0.001$), and administrative fee ($\beta=0.000255$, $p<0.05$)
- Similarly, there is a positive relationship between female directors and TER ($\beta=0.0000471$, $p<0.05$) and with administrative fee ($\beta=0.0000325$, $p<0.05$)
- Age is positive and significant with TER ($\beta=0.0165$, $p<0.01$) and administrative fee ($\beta=0.00834$, $p<0.01$)
- Most variables except for board size have been insignificant with the management fee
- We observe a negative relationship between market capitalization and TER ($\beta=-0.00185$, $p<0.001$) and also for administration ($\beta=-$

0.00132, $p < 0.001$). The same relationship is found between management fee and fund age ($\beta = -0.000193$, $p < 0.001$).

- When gearing increased in the fund, it led to an increase to all measures of fees

6.1.4 Comparison

In this section, findings that were compared in the three empirical chapters (Chapter 3, 4, and 5) are analyzed. The analysis will promote a better comprehension of how the various corporate governance variables have behaved with performance (ROA, ROE, and discount) and also with fees (total expense ratio, management fee, and administrative fee).

Female directors have a positive impact on the performance of the investment trusts when accounting measures ROA and ROE are employed. However, no similar data emerges when focusing on discounts and fees. The findings point out that when more female directors are present on the board there is a deterioration in the discount and there is an increase in the total expense ratio and administrative fee. Applying a similar argument to that of Martín-Ugedo et al. (2019), the accounting-based performance could have been enhanced due to female directors potentially resisting risky investment, especially in high-risk sectors.

The findings bring forward the argument that an increase in ROA could be due to the decrease of assets rather than the net income, Figure 24 shows the average assets and average income of the investment trusts between 2000-2017. During the periods 2002-2003 and 2007-2008, there was a decline in both the assets and income due to the aftermath effect of the dot com and global financial crisis. There could have been an increase in assets whilst reducing exposure to risky assets, which would have impacted ROA. However, this situation could have potentially affected the NAV of the fund which in turn leads to wider discounts. It can also be argued that a reduction in risky assets

reduces potential large cash inflows from investments and therefore the funds increase the fees charged to the investors.

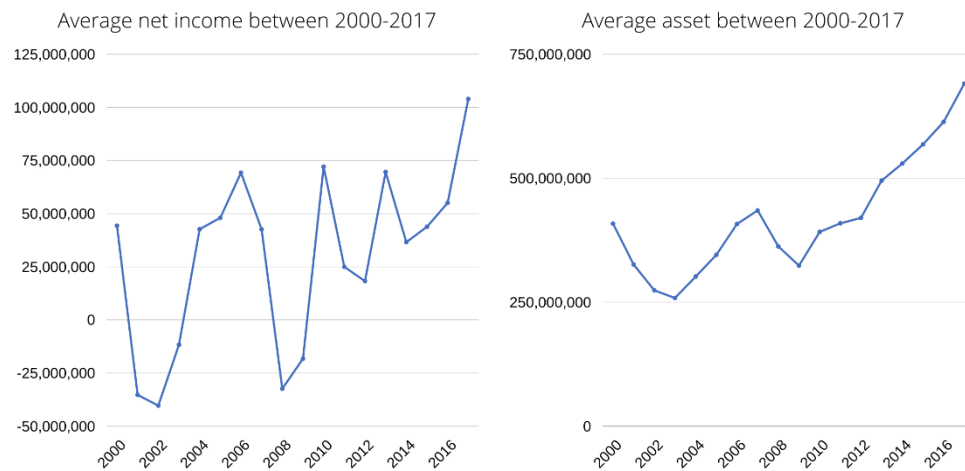


Figure 22 The average net income and average assets between 2000-2017

When the dummy variable, BSIZE=NED is used, it indicates that the board is fully composed of independent directors. The findings of the current research report that performance is enhanced when both accounting-based measures (ROA and ROE) and market-based measures (discount) are utilized. When the board is fully independent, ROA and ROE are increased whilst discount is reduced. It can be argued that the presence of more independent directors could trigger the dismissal of managers making poor investment decisions; this argument could be potentially linked with the proposition made above regarding female directors, who would also be independent directors since their opposition to certain investment decisions could help increase performance. Our findings are supported by Ding and Wermers (2009), who found that there was a higher probability that underperforming directors are ousted when there are more independent directors.

When board size has been utilized an increase in the total expense ratio and administrative fees are observed. It can be deduced that when the board is composed of both executive and non-executive directors, there is a lower likelihood that fees are reduced. Meanwhile, Khorana and Serveas (2012) detected a positive relationship between fund flow and fund fees. It was proposed earlier that when there are more female directors risky investments are reduced, which can lead to a reduction of high returns. Therefore, the fund would need to increase their investments as shown by the increase of assets in Figure 25, to match the return which in turn leads to higher fees.

There is a positive relationship between the age of the directors and performance measured by ROA, ROE, and discount. This finding shows that over time as the directors age they also accumulate experience which proves to be useful for the investment trusts. As brought forward by Jehn et al., (1999), when the complexity of the business evolves there is a need for a board of directors that are from various age groups to provide different perspectives. It can further be argued that the conservatism possessed by older directors (Berger, et al., 2014), can help rail the younger directors back when investment ideas become too risky. Similar to board size there is also an increase in the fees in the presence of older directors.

The results show that when the remuneration of the board of directors is increased, performance deteriorates. when focusing on the fees, however, the inclusion of remuneration in the regression has been omitted since the total expense ratio is already inclusive of the director's fees. Berk and Stanton (2007) argued that there was a trade-off between the value-added from the superior ability of directors and the high remuneration that they are awarded. It is observed through the current study undertaken that discount becomes worse when remuneration increases, which highlights that remuneration paid out exceeds the value created by these directors. It can also be implied that it could lead to ineffective use of assets thus affecting ROA.

It can be argued that when the board of directors is paid with stock options, the share price of the investment trusts are affected when those shares are exercised, as it represents the dilution of the value of the shares. Subsequently, there will be a decrease in the share price, which will cause a deviation from the NAV. The present research conducted, notes

that when the director's ownership increases discount deteriorates; there is a significant relationship only with discount and not the accounting-based performance measures. It can be argued that the change in the share price is reflected in discount instantly, furthermore, the findings point out the possibility that the ownership concentration of the directors can dictate buy and sell orders from investors which further affect the share price.

There is a significant and positive relationship between substantial ownership and both ROA and discount whilst there is no significant relationship with ROE and fees. It can be proposed that large institutional investors would influence the investment decisions in the fund thus affecting the assets and ultimately ROA. Table 53 shows that these investors typically include asset managers whom themselves possess investment knowledge and a considerable stake in the fund. Since the asset managers possess higher voting power and significant capital tied up in the fund, they monitor investments closely which can also have a positive influence on the share price thus reducing the discount.

It could be argued that large investors such as banks would provide debt at a cheaper cost which could lower the fees, however, there is no significant relationship between substantial ownership and fund fees. Furthermore, it can also be debated that administrative fees are not negotiable thus they cannot be reduced. The large investors may also be willing to incur a higher fee for management fees and directors' fees to benefit from the expertise and experience of these agents, which can ultimately help with reducing discount and enhancing performance.

Table 53 The substantial ownership for the investment trust Blackrock Emerging Europe (2017)

Investors	Type of institutions	Ownership (%)
City of London Investment Management Company LTD	Investment trusts	21.10
Aberdeen Asset Managers LTD	Investment management company	13.90

Investors	Type of institutions	Ownership (%)
Pictet	Bank	10.40
Blackrock Inc.	Investment management company	8.70
Derbyshire County Council	County council	7.50
Lazard Asset Management LLC	Asset management	6.80
Wells Capital Management Inc.	Investment management company	5.80
Total		74.20

Data source: Blackrock Emerging Europe, Annual report 2017

Market capitalization represents the size of the investment trusts, and the findings note that as the size of the fund increases performance also increases, ROA and ROE improve whilst discount is narrowed. It is also seen that larger funds lead to lower fees for all three measures: total expense ratio, management fee, and administrative fee. When the investment trusts become larger, it can insinuate that there will be a larger board of directors, thus providing greater oversight which can curtail opportunistic behaviors of the fund managers hence performance is enhanced. It can also be argued that the board will be able to provide greater advice to the managers which can reduce discounts.

When the fund age increases, both the total expense ratio and management fee decrease; older funds also help in the reduction of discount. Therefore, the undertaken study shows that older investment trusts may perform more efficient investments because of the learning curve and be better prepared for adverse conditions in the market, hence reducing discount. The use of increased gearing leads to an increase for all the fees (total expense ratio, management fee, and administrative fee) and deteriorates the performance of the investment trusts when focusing on ROA and ROE.

6.2 Practical implications

Our study shows that the presence of female directors on the board enhances both ROA and ROE, demonstrating that investment trusts should include more female directors on the board since their presence creates value to the shareholders. The UK government recently released a report⁴⁴ highlighting its commitment to several initiatives, one of which is the recruitment of more women into the workforce. Bloomberg reported that State Street Global Advisors, one of the world's asset managers, have declared explicitly that they will support companies with at least one woman on their board of directors (Kishan, 2022). Over 18 years (2000-2017), we detected only 11% of female directors on investment trust boards, with 16% of funds having no female representation on their boards in 2017. Therefore, we suggest that the UK government along with key players in the asset management industry should consider increasing their effort by adopting certain mandates and targets. Since female directors are currently underrepresented at the management level.

We found that older directors help improve performance by reducing the level of discount in the investment trusts whilst also improving both ROA and ROE. This result demonstrates how the directors' skills and wisdom have aided in increasing shareholder wealth. In practice, it has been suggested that boards of directors should be well-versed in emerging issues relating to new technology (Hellier, 2017). It has been suggested by Grove et al. (2011) that there is a concave relationship between the age of the directors and the performance of banks, they argue that experienced directors (older directors) help tackle complex issues at the bank however past a certain age their ability to deal with complexity lessens. Thus, we argue that the relationship between age and performance is not linearly related, and investment trusts should have a board of directors of diverse ages to tackle traditional and emerging issues. Investment trusts, such as Scottish Mortgage Trust (SMT) was observed to have shifted their investment on more complex objectives such as cryptocurrency and blockchain. Consequently, we propose that, while older

⁴⁴ <https://www.gov.uk/government/publications/gender-pay-gap-report-2020-to-2021/gender-pay-gap-report-1-april-2020-to-31-march-2021>

directors may boost performance, age diversity will ultimately determine the funds' future success.

While age brings wisdom on the board, the same cannot be said about tenure. We discovered that tenure has a negative impact on performance, which could indicate that long tenure leads to director entrenchment. As a result, although elder directors are needed on the board, these directors should not have long-term ties to investment trusts, as this may impair their objectivity. It can be argued that there is also a quadratic relation between tenure and performance, whereby there is an increase in performance in the early years however as time passes and tenure increases, performance worsens. Huang and Holary (2018) also detected a similar concave relationship when observing Vietnamese firms. Currently, there is no recommendation about the tenure of directors; the UK Code of Corporate Governance should make some provisions with regards to the length of time a director is allowed to operate in a fund.

The last empirical chapter in this study focuses on fees charged by investment trusts. The results indicate a positive relationship between corporate governance characteristics such as board size, female directors, and the age of the directors and fees. It can be argued that corporate governance can help enhance performance as observed in Chapters 3 and 4 but a reduction of the fees may not necessarily be feasible if there are greater administration costs in these funds. Investment trusts are publicly listed companies with substantial costs as compared to their counterparts such as ETFs, hence having higher administrative costs despite the inclusion of more NEDs and female directors on the board. In practice, investors should not be focused only on the higher fees of these investment trusts but also on their performance.

6.3 Contributions

“Masters of the universe or servants of the people?” – John Kay

The mind wanders whether the former question resonates across the roundtables of the board meetings. Investors have been confronted with conflicting feelings regarding the agents managing and overseeing their wealth. However, time and knowledge constraints remain critical obstacles that hinder investors from taking control of their capital, thus their reliance on investment funds. In 1868, investors were graced with a Victorian invention in the form of investment trusts, which offered investors a diversified investment opportunity. Their persistent survival throughout these years can be associated with their performance. Hence this study embarked on the pursuit to comprehend the performance of UK investment trusts and make some contribution to the literature by showing that different corporate governance mechanisms can affect performance and fees.

The findings from Chapter 3 showed a positive effect on investment trusts performance when there are more female directors (Carter et al., 2003 Marinova et al., 2016), a greater number of NEDs (Khorana and Serveas, 2007), and higher substantial ownership. These findings contribute to the existing literature and align with the proposed hypotheses as shown in Table 4 (pg. 114-115). We also detected a positive relationship between performance and the age of directors, which was contradictory to our hypotheses. The literature on age showcased that as age increases an individual’s abilities decreases (Salthouse, 2012; Waelchi and Zeller, 2013; Berger et al., 2014). Our findings in the context of investment trusts help contribute to the literature by showcasing that older NEDs can add value to the board thus enhancing their performance. We also observe that performance worsens when larger remuneration is paid out to the NEDs, and tenure is longer. The chapter contributes to the pool of knowledge by providing findings to fill the gap in the corporate governance literature for investment trusts. To the best of our knowledge, we have not observed any studies that have focused on gender, age, and tenure of directors in the context of investment trusts.

Chapter 4 puts forward the discussion that discount is a prevalent phenomenon in investment trusts and the persistence of deviation of price from NAV was not linked to a specific factor. Thus, the current study can serve as a potential area for further research:

it has been revealed from gathered data that corporate governance characteristics can be associated with the discount level in the funds. In the present study, it is equally noted that a higher proportion of NEDs, larger remuneration, and larger ownership (director and substantial), helped reduce discount. Studies by Meredino and Melville (2018) and Mira et al. (2019) focused on the effect of NEDs on performance in the firm context. Since the board structure of investment trusts are different from a firm, the result from this study showcases that boards fully comprised of NEDs can be beneficial to the fund.

Chapter 5 helps to provide updated evidence with regard to fees in the investment fund industry. The present study undertaken contributes to the literature by focusing on the effect of corporate governance and fees for investment trusts, an area of study which was lacking. Prior studies by Petajisto (2013), Parida and Tang (2018), and He et al. (2018) focused on mutual funds, whilst studies on closed-ended funds remain limited and outdated (Ross, 2002 and Cherkes, 2003). It was observed that the larger boards, more female directors, and older directors led to an increase in the fund. Moreover, the presence of a board with dominantly older directors led to an increase in the fees as it can be argued that the directors exercised groupthink as discussed by Lai et al. (2017).

Furthermore, the current study takes into consideration evidence that confirms several propositions recommended in various reports. The Higgs report (2003) and the UK Corporate Governance Code (2018) both suggest that the inclusion of NEDs was necessary on the board as they provide independence and reduce power concentration. The findings observe that NEDs enhance performance with an increase in both ROA and ROE (Chapter 3), it also helps reduce discount (Chapter 4). The Gender diversity on board' (2011) proposed that gender diversity can enhance the value of the board; it is observed that female directors have the ability to increase accounting-based performance measures. However, the study contributes to the literature by discovering that discount is widened, and fees are increased in the presence of more women.

This study highlights that the presence of corporate governance mechanisms has an obvious impact on both performances of the investment trusts along with the fees that investors incur. The use of both accounting-based measures (ROA and ROE) and market-based measures (Discount) has reinforced the findings found across corporate governance

mechanisms such as female directors, age of directors, and remuneration. However, it was made apparent that corporate governance alone does not dictate the performance of these funds, especially when focusing on discounts. This closed-end fund puzzle remains an unsolved mystery.

6.4 Contribution to the theory

The focus on corporate governance, more specifically the agency theory, was deemed appropriate due to the nature of the investment trusts. Since investors must delegate the capital management to the investment team and the monitoring to the board of directors, the actions of these agents can be impactful on the return of the investors. This study helps to provide evidence to confirm the existing literature on an agency theory for various corporate governance characteristics such as NEDs, female directors, and age of the directors. Choi et al. (2017) argued that agents often tend to be self-interested; it is observed that a board with long tenure produced poor performance (Chapter 3). It could be argued that the longer the directors remain in the investment trusts, the higher the probability of becoming entrenched. When they veer from the fund's goal, it develops a conflict between the shareholders and the agents.

The agency theory has been tackled extensively throughout the literature in the context of firms (Jensen, 1986; Shleifer and Vishny, 1997; Mallin et al., 2010; Campbell et al., 2012). However, the literature is barren when the focus is placed on the relationship between the agents and principal within investment trusts. Since there are no other parties such as employees or suppliers involved in the fund, the highlight remains on the relationship between the capital owners and capital managers. Therefore it can be argued that investment trusts remain an important investment choice for investors in the UK by

the increase of assets under management between 2000-2017⁴⁵. Thus, the current study adds to the pool of literature by tackling the relationship between corporate governance and performance and fees for investment trusts through the agency theory.

As discussed above, corporate governance characteristics such as gender and age were considered in the context of UK investment trusts as there are lacking studies on their effect on performance. Some of the key findings of this research show surprisingly unexpected evidence which is inconsistent with the agency theory. It is deduced that discount is widened when there are more female directors on the board (Chapter 4). Studies by Masulis et al. (2011) and Green and Homroy (2018) found that the inclusion of women on the board in firms enhances monitoring. However, from a fund's perspective, it is observed that female directors are not effective agents to monitor the discount level in investment trusts. Ahern and Dittmar (2012) also noted poor performance in the presence of more women. Thus, it can be argued that the premise to include women on the board should be due to their experience and not to meet a quota.

6.5 Research implications

Policymakers and regulators

Under the revised UK Corporate Governance Code (2018), investment trusts that are externally managed are not required to adopt the revised provisions, as they follow the Association of Investment Companies' Corporate Governance Code which is endorsed by the Financial Reporting Council. Provision 6 specifies that the board should have a balanced composition in terms of experience, skills, and knowledge. Although in the recommendations section it is mentioned board diversity should be considered, the current study's findings point to the fact that more appointments of female directors could be

⁴⁵ See Appendix B

beneficial for the fund performance, as indicated by the positive effect on performance (ROA, ROE, and Discount).

The persistence of discount in the investment trusts over the years could also be an indication of a lack of effective monitoring from the directors; therefore, it is recommended that codes are used for better and more frequent monitoring of investment managers to better manage deviations. The inclusion of more female directors could serve the purpose mentioned above, but it is also suggested that the composition of the board should be more diverse with regards to knowledge and expertise. Diversity in terms of knowledge and expertise can be attained by ensuring a variety in age and tenure of the directors.

Investors

This thesis can be insightful for investors focusing on investing in pooled investment vehicles such as investment trusts. These funds have been trading since the 1800s on the London Stock Exchange, which is indicative that investors find their structure and characteristics attractive despite trading away from their NAV. The findings of this research have highlighted that nearly all investment trusts have a board fully composed of non-executive directors⁴⁶, which shows that the investors are represented by directors who are not potentially conflicted and do not possess divergent agendas. Investors might find this as an attractive trait for a fund and may consider the investment.

Furthermore, the sample also shows that over the years there has been more inclusion of female directors on the board as shown by the graph below, the study's findings support that the increase in female directors helps enhance the performance of the funds. Therefore, we believe that investors who value good corporate governance might consider

⁴⁶ 92% of the observation of 123 funds between the period 2000-2017

investment trust as they have showcased some good characteristics such as gender and independent directors which contribute to better performance. Although Solal and Snellman (2019) reported that the market value faced a decline upon the inclusion of more female directors, we agree with the authors that these are caused by the perception of investors into thinking the female directors are not up for the job. However, the findings of the study undertaken to prove the contrary.

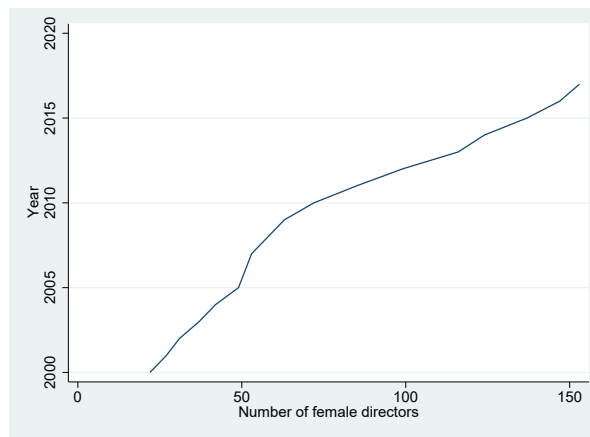


Figure 23 The number of female directors on the board over the period 2000-2017

Lastly, this thesis has highlighted that although investment trusts suffer from the discount anomaly, they do possess some attractive characteristics that can be beneficial for investors. The funds in the sample trade on the London Stock Exchange make it compulsory for disclosures and transparency thus there is a lower risk of abuse of capital. This also indicates that the funds face regulations from the exchange and financial regulators, thus they must abide by the Code of Corporate Governance. This thesis has shown corporate governance characteristics such as female directors, the board size, independent directors, remuneration, age of directors, and ownership have some impact on both performance and fees.

The Association of Investment Companies is a trade association body for investment companies which includes investment trusts, they also provide a Code of Corporate Governance which the funds abide by. The presence of this code along with the UK Code of Corporate Governance shows that regulators value the proper governance of these investment funds is highly regarded. Nevertheless, it is important to emphasize that certain aspects of the funds should be revised to better enhance performance and to reduce potential conflicts between the principal and agents in the funds since it is not ethical to support a breed of directors and managers that are focused only on the *'four P's'* – *pay, perks, power, and prestige* – T.Boone Pickens.

6.6 Limitations

The focus on both investment trusts and corporate governance led to the difficulty in acquiring data. The inclusion of investment trusts on Databases such as Bloomberg and Thomson Reuters has not proven to be useful as these databases provide minimal corporate governance data, they only show substantial ownership for the current year. Subsequently, the dataset had to be hand collected, all corporate governance variables were gathered from the annual reports which proved to be time-consuming. Furthermore, since investment trusts have been trading for a long period, the sample period of study could have been extended. But the lack of data before the year 2000 only allowed the maximum year of study to be 18 years.

According to Trustnet, there were 270 investment trusts in the UK (November 2018). However, the longest time frame for data availability for a maximum number of funds was 18 years if the study were chosen for a longer period the sample number would be reduced; therefore, resulting in the selection of 123 investment trusts only. The choice of a larger sample size would have restricted the year's observations and would have led to the sample suffering from various biases such as survivorship bias. The equity-focused

sample has also excluded many funds from this study, several funds had a focus on fixed income, commodities, and properties (REITs); however, they were excluded for a more homogenized sample and also due to their varied characteristics which affect measures of performance.

We recognize that this sample suffers from survivorship bias, as it only considers the good investment trusts that have survived whilst ignoring funds that have either been liquidated or changed their structure to an open-end fund. The results from this study are based on the positive side. Between the period of 2000-2017, there were some changes with regards to the investment trusts trading on the London Stock Exchange. Several funds such as Themis FTSE All-Small Index traded on the exchange in the year 2000, the fund was renamed Edinburgh UK Smaller Companies Tracker Trust PLC and was eventually liquidated in 2014.

Furthermore, the collection of data has been tedious due to the lack of information available on databases such as Bloomberg and DataStream. Bloomberg had some corporate governance information such as ownership however they were not present for investment trusts but only for firms at the time of the search. The use of other data providers such as Morningstar and Amadeus was also not useful due to the limited number of years and data was only available for 3-5 years. Although Thomson Reuters Eikon provides the largest investors ownership, they only provide data for the current year and there is no historical ownership data.

Consequently, all data related to corporate governance and performance of the investment trusts had to be hand collected from the annual reports for the sample of 123 investment trusts. These reports were obtained mostly from the Companies House website, which is the registrar for UK companies. The hand collection of data has also helped with the uniformity of data. The performance measures (ROA, ROE, discount, and TER) were all computed from the data gathered in the annual report due to the inconsistent availability of data throughout the years. The TER was not consistent throughout the years for all the investment trusts since some funds included performance fees, whilst the majority did not. There were also inconsistencies in the data when they were acquired from various sources.

In the research models, two characteristics have not been considered yet due to the unavailability of the data at the moment. Since the whole board of some investment trusts is composed of NEDs, we could have evaluated whether the multi-directorship of the directors helps in the quest of acquiring resources and information or hinder their performance due to biases. The accommodation of well-rounded NEDs on board is also necessary for contributing to a different approach when tackling problems; they would be able to contribute to discussions across all areas and not just their area of expertise which they can acquire by being present on several boards. Websites such as Bloomberg and Company house provide the current multi-directorship of the directors but not for prior periods.

The other missing information is the characteristics of female directors on the board which consist of data such as their experience, education level, and social network. Throughout the literature, we have not come across the focus on the effect of multiple directorships of NEDs or the characteristics of female directors on the performance of UK investment trusts, which would allow us to contribute to the literature on corporate governance as well as UK funds especially CEFs, but this can be observed in later studies. The inclusion of these could also be tackled through the resource dependence theory and the stewardship theory.

6.7 Recommendation for future research

In this study, the investigation of corporate governance is presented based on a selection of mechanisms. However, the vast literature on corporate governance has shown that other aspects of corporate governance can be utilized to further understand their effect on investment trust performance. Despite the efforts to focus on the board size and some of the characteristics of the board members such as gender, age, and nationality; other aspects such as multi directorship (board interlock) should be considered as the

interconnection of directors can potentially affect the investments within the funds. The board of investment trusts is dominated by non-executive directors, who usually possess several directorships; thus, the effect of their experience and network acquired can impact their monitoring.

As discussed in Section 3.4, data has been hand collected and some corporate governance data such as board interlock was not easily available therefore this variable will be explored in future research. The focus will also be on committees such as audit and remuneration in subsequent studies as these data have been difficult to capture. Although during data collection, databases did not include corporate governance data, recently they have started to include some variables. Therefore, other corporate governance variables could potentially be investigated when the data is available for a longer period.⁴⁷

Furthermore, there is a potential to tackle the impact of corporate governance networks through other theories such as the resource dependence theory. The present literature is scarce with regards to the study of corporate governance in investment trusts. But there is even scarcity in the discussion of various corporate governance theories in investment trusts in the UK and beyond, the agency theory dominates the studies on corporate governance. Therefore, further research on various theories could potentially shed a better understanding of the persistence of the discount anomaly in an investment trust. The increased research in behavioral finance and investors' biases could also help analyze the anomaly.

The rise of female presence is captured in this study, however, in many investment trusts, it still represents an early change which has provided some weak results. The future research aims to dig further into the attributes of women in subsequent studies to acquire a better understanding of their contribution to monitoring as board members. The attributes of women that can be considered are their previous work experience, their multi directorships, whether they occupy a position in the same fund management, and their presence on different committees.

⁴⁷ It can be argued that databases such as BoardEx and Audit Analytics would be more appropriate to capture data such as director interlock and audit committee respectively, however we do not have access to these databases.

The difference between male and female directors has been discussed in studies (Singh et al., 2008; Croson and Gneezy, 2009) which highlighted their views in risk-taking, experience, expertise, and other factors. These differences are thought to be affecting the directors' monitoring skills on the board. The education of male and female directors can also help explore their effect on performance. It can also help analyze whether networks formed during university play a role in securing resources, which can be tackled through the resource dependence theory.

And lastly, Raelin and Bondy (2013) discussed the double-layered agency theory where they focus on the relationship between shareholders and managers, and shareholders and society. The AIC (2021)⁴⁸ reported that 65% of private investors consider ESG factors when investing and found that there are funds that are actively including investments that have a positive effect on society. As more investors are becoming more conscious the flow of capital in investment funds is becoming scattered in ESG funds and non-ESG funds. Therefore, future research could focus on the effect of the inclusion of ESG on the performance of investment trusts.

⁴⁸ <https://www.theaic.co.uk/aic/news/press-releases/how-much-does-esg-really-matter-to-investors>

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APPENDIX

Appendix A

List of the investment trusts used in this study along with their fund managers and investment sector

Ticker	Fund name	Sector	Fund manager
AAS	Aberdeen Asian Smaller Companies IT PLC	Asia Pacific - Excluding Japan	Aberdeen Fund Managers Ltd
ABD	Aberdeen New Dawn Investment Trust PLC	Asia Pacific - Excluding Japan	Aberdeen Fund Managers Ltd
ADIG	Aberdeen Diversified Income and Growth Trust PLC	Flexible Investment	Aberdeen Fund Managers Ltd
AJIT	Aberdeen Japan Investment Trust PLC	Japan	Aberdeen Fund Managers Ltd
ANII	Aberdeen New India Investment Trust PLC	Country Specialists: Asia Pacific	Aberdeen Fund Managers Ltd
ANW	Aberdeen New Thai Investment Trust PLC	Country Specialists: Asia Pacific	Aberdeen Fund Managers Ltd
ARR	Aurora Investment Trust PLC	UK All Companies	Phoenix Asset Mgt
ASCI	Aberdeen Smaller Companies Income Trust PLC	UK Equity & Bond Income	Aberdeen Fund Managers Ltd
ASL	Aberforth Smaller Companies Trust PLC	UK Smaller Companies	Aberforth Partners
ATR	Schroder Asian Total Return Investment Company	Asia Pacific - Excluding Japan	Schroder Investment Mgt Ltd
ATS	Artemis Alpha Trust PLC	UK All Companies	Artemis Fund Managers Ltd
ATST	Alliance Trust PLC	Global	Willis Towers Watson
ATT	Allianz Technology Trust PLC	Sector Specialist: Tech Media & Telecomm	Allianz Global Invetrs GmbH(UK)
ATY	Athelney Trust PLC	UK Smaller Companies	Athelney Trust PLC
BAF	British & American IT PLC	UK Equity Income	British & American IT
BEEP	BlackRock Emerging Europe PLC	European Emerging Markets	BlackRock Investment Mgt (UK) Ltd
BGFD	Baillie Gifford Japan Trust PLC	Japan	Baillie Gifford & Co Ltd
BGS	Baillie Gifford Shin Nippon PLC	Japanese Smaller Companies	Baillie Gifford & Co Ltd
BIOG	The Biotech Growth Trust PLC	Sector Specialist: Biotechnology & Healthcare	Frostrow Capital LLP
BLP	Blue Planet Investment Trust PLC ORD 1P	Global Equity Income	Blue Planet Invest Mgt Ltd

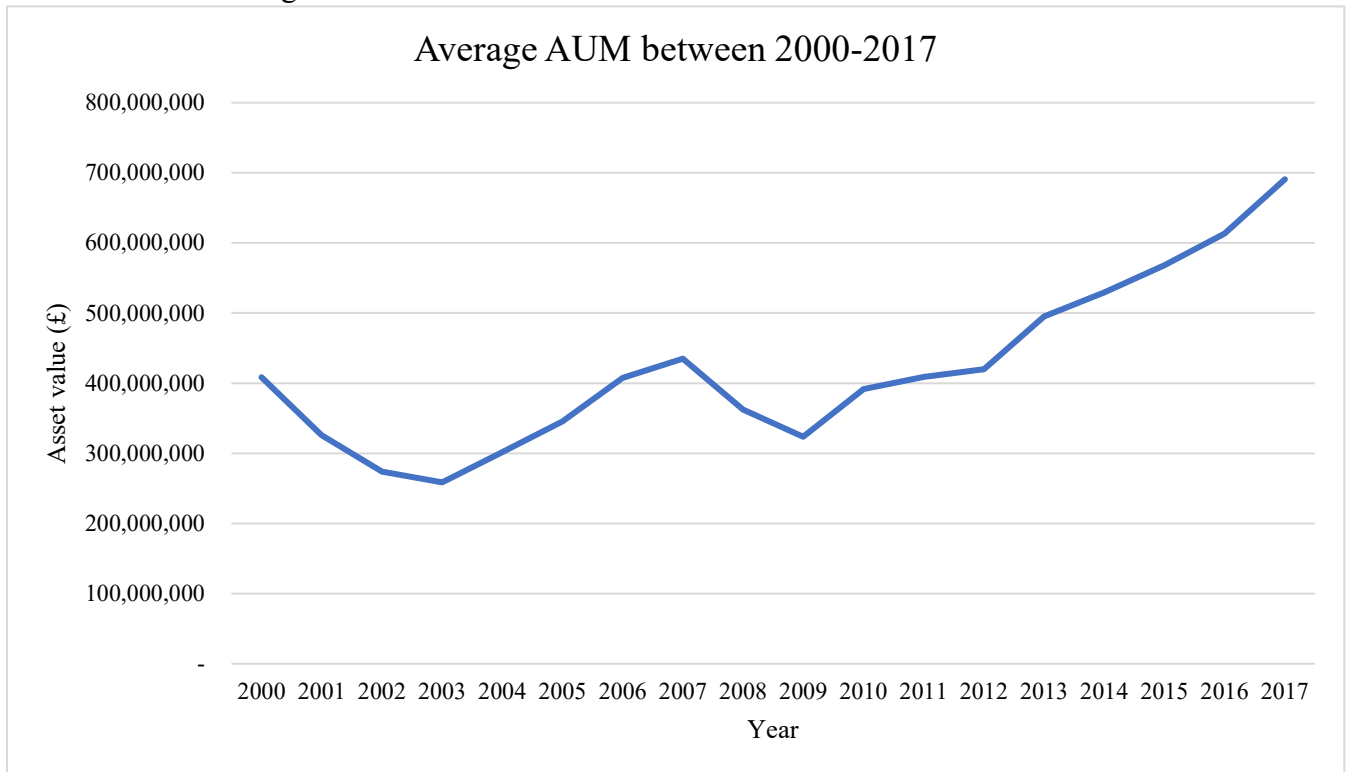
Ticker	Fund name	Sector	Fund manager
BNKR	The Bankers Investment Trust	Global	Janus Henderson Investors
BRLA	BlackRock Latin American IT	Latin America	BlackRock Investment Mgt (UK) Ltd
BRSC	BlackRock Smaller Companies IT	UK Smaller Companies	BlackRock Investment Mgt (UK) Ltd
BTEM	British Empire Trust PLC	Global	Asset Value Investors
BUT	Brunner Investment Trust PLC	Global	Allianz Global Invetrs GmbH(UK)
CGT	Capital Gearing Trust PLC	Flexible Investment	Capital Gearing Asset Mgt
CGW	Chelverton Growth Trust PLC	UK Smaller Companies	Chelverton Asset Mgt Ltd
CLDN	Caledonia Investments PLC	Global	Caledonia IT
CTY	The City of London Investment Trust	UK Equity Income	Janus Henderson Investors
DIG	Dunedin Income Growth Investment Trust PLC	UK Equity Income	Aberdeen Fund Managers Ltd
DNDL	Dunedin Smaller Companies Investment Trust PLC	UK Smaller Companies	Aberdeen Fund Managers Ltd
DNE	Dunedin Enterprise IT PLC	Private Equity	Dunedin LLP
EDIN	Edinburgh Investment Trust PLC	UK Equity Income	Invesco Asset Mgt
EFM	Edinburgh Dragon Trust PLC	Asia Pacific - Excluding Japan	Aberdeen Fund Managers Ltd
ELTA	Electra Private Equity PLC	Private Equity	Electra Partners
EUT	The European Investment Trust PLC	Europe	Edinburgh Partners
EWI	Edinburgh Worldwide IT PLC	Global	Baillie Gifford & Co Ltd
FAS	Fidelity Asian Values PLC	Asia Pacific - Excluding Japan	Fidelity (FIL Invt Intl)
FCI	F&C Capital & Income IT PLC	UK Equity Income	F&C (BMO Global Asset Mgt)
FCS	F&C Global Smaller Companies	Global	F&C (BMO Global Asset Mgt)
FEV	Fidelity European Values PLC	Europe	Fidelity (FIL Invt Intl)
FGT	Finsbury Growth & Income Trust PLC	UK Equity Income	Frostrow Capital LLP
FJV	Fidelity Japanese Values PLC	Japan	Fidelity (FIL Invt Intl)
FPEO	F&C Private Equity Trust	Private Equity	F&C (BMO Global Asset Mgt)
FRCL	Foreign & Colonial Investment Trust	Global	F&C (BMO Global Asset Mgt)
FSV	Fidelity Special Values PLC	UK All Companies	Fidelity (FIL Invt Intl)
HAN	Hansa Trust PLC	Flexible Investment	Hansa Capital Partners LLP
HAST	Henderson Alternative Strategies Trust PLC	Flexible Investment	Janus Henderson Investors

Ticker	Fund name	Sector	Fund manager
HEFT	Henderson European Focus Trust	Europe	Janus Henderson Investors
HHI	Henderson High Income Trust	UK Equity & Bond Income	Janus Henderson Investors
HNE	Henderson Euro Trust	Europe	Janus Henderson Investors
HOT	Henderson Opportunities Trust	UK All Companies	Janus Henderson Investors
HRI	Herald Investment Trust PLC	Sector Specialist: Small Media, Communications & IT Cos	Herald Investment Mgt Ltd
HSL	Henderson Smaller Companies Investment Trust	UK Smaller Companies	Janus Henderson Investors
IAT	Invesco Asia Trust PLC	Asia Pacific - Excluding Japan	Invesco Asset Mgt
IBT	International Biotechnology Trust	Sector Specialist: Biotechnology & Healthcare	SV Health Managers
ICGT	ICG Enterprise Trust PLC	Private Equity	Intermediate Capital Group
INV	The Investment Company PLC	UK Equity Income	Fiske PLC
IPU	Invesco Perpetual UK Smaller Companies PLC	UK Smaller Companies	Invesco Asset Mgt
IVI	Invesco Income Growth Trust PLC	UK Equity Income	Invesco Asset Mgt
JAI	JP Morgan Asian IT PLC	Asia Pacific - Excluding Japan	JP Morgan Asset Mgt UK
JAM	JP Morgan American IT PLC	North America	JP Morgan Asset Mgt UK
JCH	JP Morgan Claverhouse IT PLC	UK Equity Income	JP Morgan Asset Mgt UK
JETI	JP Morgan European IT PLC Income Shares	Europe	JP Morgan Asset Mgt UK
JFJ	JP Morgan Japanese IT PLC	Japan	JP Morgan Asset Mgt UK
JII	JP Morgan Indian IT PLC	Country Specialists: Asia Pacific	JP Morgan Asset Mgt UK
JMC	JP Morgan Chinese IT PLC	Country Specialists: Asia Pacific	JP Morgan Asset Mgt UK
JMF	JP Morgan Mid Cap IT PLC	UK All Companies	JP Morgan Asset Mgt UK
JMG	JP Morgan Emerging Markets IT PLC	Global Emerging Markets	JP Morgan Asset Mgt UK
JMI	JP Morgan Smaller Companies Trust PLC	UK Smaller Companies	JP Morgan Asset Mgt UK
JPGI	JP Morgan Global Growth & Income PLC	Global Equity Income	JP Morgan Asset Mgt UK
JUKG	Jupiter UK Growth Investment Trust PLC	UK All Companies	Jupiter Asset Mgt Ltd
JUS	Jupiter US Smaller Companies PLC	North American Smaller Companies	Jupiter Asset Mgt Ltd
JUSC	JP Morgan US Smaller Companies IT PLC	North American Smaller Companies	JP Morgan Asset Mgt UK
KIT	Keystone IT PLC	UK All Companies	Invesco Asset Mgt
LWDB	Law Debenture Corporation PLC	Global	Law Debenture IT

Ticker	Fund name	Sector	Fund manager
LWI	Lowland Investment Company	UK Equity Income	Janus Henderson Investors
MAJE	Majedie Investments PLC	Global	Majedie Investments IT
MCP	Martin Currie Asia Unconstrained Trust	Asia Pacific - Excluding Japan	Martin Currie Investment Mgt
MNKS	Monks Investment Trust PLC	Global	Baillie Gifford & Co Ltd
MNL	Manchester & London IT PLC	UK All Companies	M&L Capital Mgt Ltd
MNP	Martin Currie Global Portfolio Trust PLC	Global	Martin Currie Investment Mgt
MRC	The Mercantile Investment Trust PLC	UK All Companies	JP Morgan Asset Mgt UK
MRCH	Merchants Trust PLC	UK Equity Income	Allianz Global Invetrs GmbH(UK)
MTH	Mithras Investment Trust PLC	Private Equity	Mithras Capital Partners LLP
MTU	Montanaro UK Smaller Companies IT PLC	UK Smaller Companies	Montanaro Asset Mgt Ltd
MUT	Murray Income Trust PLC	UK Equity Income	Aberdeen Fund Managers Ltd
MWY	Mid Wynd International Investment Trust PLC	Global	Artemis Fund Managers Ltd
MYI	Murray International Trust PLC	Global Equity Income	Aberdeen Fund Managers Ltd
NAIT	The North American Income Trust PLC	Sector Specialist: Commodities & Natural Resources	Aberdeen Fund Managers Ltd
NAS	North Atlantic Smaller Companies IT	North American Smaller Companies	Harwood Capital
NRI	Northern Investors Company PLC	Private Equity	NVM Private Equity LLP
NSI	New Star IT PLC	Flexible Investment	Brompton Asset Mgt LLP
PAC	Pacific Assets Trust PLC	Asia Pacific - Excluding Japan	Frostrow Capital LLP
PCT	Polar Capital Technology Trust PLC	Sector Specialist: Tech Media & Telecom	Polar Capital Partners Ltd
PHI	Pacific Horizon IT PLC	Asia Pacific - Excluding Japan	Baillie Gifford & Co Ltd
PIN	Pantheon International PLC	Private Equity	Pantheon Ventures
PLI	Perpetual Income and Growth IT PLC	UK Equity Income	Invesco Asset Mgt
PNL	Personal Assets Trust PLC	Flexible Investment	Personal Assets
RCP	RIT Capital Partners PLC	Flexible Investment	RIT Capital Partners PLC
SCAM	Scottish American Investment Company PLC	Global Equity Income	Baillie Gifford & Co Ltd
SCF	Schroder Income Growth	UK Equity Income	Schroder Investment Mgt Ltd
SCIN	The Scottish Investment Trust PLC	Global	Scottish Investment Trust
SCP	Schroder UK Mid Cap	UK All Companies	Schroder Investment Mgt Ltd

Ticker	Fund name	Sector	Fund manager
SDP	Schroder Asia Pacific	Asia Pacific - Excluding Japan	Schroder Investment Mgt Ltd
SDU	Schroder UK Growth PLC	Private Equity	Schroder Investment Mgt Ltd
SDV	Chelverton UK Dividend Trust PLC	UK Equity Income	Chelverton Asset Mgt Ltd
SHRS	Shires Income PLC	UK Equity Income	Aberdeen Fund Managers Ltd
SIGT	Seneca Global Income & Growth Trust	Flexible Investment	Seneca Investment Managers Ltd
SJG	Schroder Japan Growth PLC	Japan	Schroder Investment Mgt Ltd
SLET	Standard Life Equity Income Trust	UK Equity Income	StandardLife Investments
SLS	Standard Life UK Smaller Companies Trust PLC	UK Smaller Companies	StandardLife Investments
SMT	Scottish Mortgage Investment Trust PLC	Global	Baillie Gifford & Co Ltd
SST	Scottish Oriental Smaller Companies	Asia Pacific - Excluding Japan	First State Investments IT
TEM	Templeton Emerging Markets	Global Emerging Markets	Franklin Templeton Investments (Asia) Ltd
THRG	BlackRock Throgmorton Trust PLC	UK Smaller Companies	BlackRock Investment Mgt (UK) Ltd
TIGT	Troy Income & Growth Trust PLC	UK Equity Income	Troy Asset Mgt
TMPL	Temple Bar Investment Trust PLC	UK Equity Income	Investec Asset Mgt Ltd
TRG	TR European Growth Trust PLC	European Smaller Companies	Janus Henderson Investors
VIN	Value & Income Trust PLC	UK Equity Income	OLIM
WPC	Witan Pacific IT PLC	Asia Pacific - Including Japan	Witan
WTAN	Witan Investment Trust PLC	Global	Witan
WWH	Worldwide Healthcare Trust PLC	Sector Specialist: Biotechnology & Healthcare	Frostrow Capital LLP

Appendix B
 UK asset under management between 2000-2017



Appendix C
 Correlation between board size and audit fees

	BSIZE	AUDFEE
BSIZE	1	
AUDFEE	0.2790	1